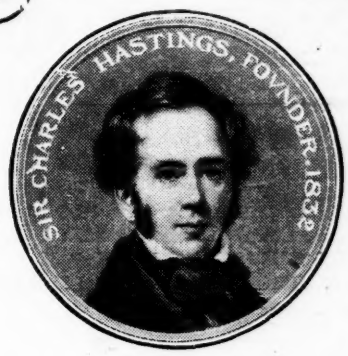
NOV 14 1922

The Medical Library


# British Medical Journal




THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

*Including an Epitome of Current Medical Literature.*

WITH SUPPLEMENT.

**No. 3226.** SATURDAY, OCTOBER 28, 1922. **Price 1/3**



## SUGGESTION AND MENTAL ANALYSIS.

**An Elementary Summary of Modern Methods of Mind Cure.**

By WILLIAM BROWN, M.A., M.D.(Oxon.), D.Sc., M.R.C.P.(Lond.), Wilde Reader in Mental Philosophy in the University of Oxford.

"A useful book expounding in a clear, practical, and unbiased way the present position as to mind cure."—*The Times.*

SECOND AND ENLARGED EDITION. Cloth. 3s. 6d. net; postage 4d. extra.

UNIVERSITY OF LONDON PRESS, LTD., 17, Warwick Square, London, E.C. 4.

---

FIFTH EDITION. 48 Plates. 12 Figures 18s. net.

NEW EDITION.

## HEWLETT'S PATHOLOGY

With many new Illustrations.

J. & A. CHURCHILL, 7, Great Marlborough St., W.1.

---

**Works by Sir CHARLES A. BALLANCE, K.C.M.G.**

**A GLIMPSE INTO THE HISTORY OF THE SURGERY OF THE BRAIN.** 10/6 net.

**ESSAYS ON THE SURGERY OF THE TEMPORAL BONE.** £7 7/- net.

**THE SURGERY OF THE HEART.** 10/6 net.

MACMILLAN & Co., St. Martin's St., London, W.C.

---

NOW READY.

15s. net. Crown 8vo. Pp. x + 336.

Illustrated.

## AURAL SURGERY

BY

WILLIAM WILSON,

Hon. Surgeon, St. John's Hospital for the Ear, Manchester; Oto-Laryngologist, Withington and Crumpsall Hospitals and the Booth Hall Infirmary for Children, Manchester.

Publishers: SHERRATT & HUGHES, Manchester.

---

*NOW READY.*

THE PANEL DOCTOR'S VADE MECUM.

## Medical Insurance Practice

**A complete book of reference on medical benefit under the National Health Insurance Acts.**

BY

R. W. HARRIS,

Late an Assist. Secretary in the Ministry of Health;

AND

LEONARD SHOETEN SACK,

of the Middle Temple, Barrister-at-Law;

with Preface by Dr. H. B. BRACKENBURY, Chairman of the Insurance Acts Committee of the British Medical Association.

A practical book; not a mere reprint of the Medical Benefit Regulations with footnotes, but a comprehensive treatment of the whole question, subject by subject.

Price 7s. 6d. net; by post, 7s. 10d.

THE SCIENTIFIC PRESS, LTD.,

28 & 29, Southampton St., Strand, London, W.C. 2.

---

**HYPNOTISM AND TREATMENT BY SUGGESTION.** [5/- net.

**3rd Ed.]**

By ALBERT E. DAVIS, F.R.C.S.Ed., L.R.C.P., Hon. Phys. to the Liverpool Psycho-Therapeutic Clinic.

SIMPKIN, MARSHALL & Co., Ltd.: London.

---

*OXFORD MEDICAL PUBLICATIONS*

## PRACTICAL PHYSICS.

By **J. A. CROWTHER**, Sc.D., F.Inst P., Sometime Fellow of St. John's College, Cambridge; Demonstrator of Physics in the Cavendish Laboratory, Cambridge.

Cloth. Crown 8vo. 284 pp., with 94 Illustrations. Price 10s. 6d. net.

London:

HENRY FROWDE and HODDER & STOUGHTON, The LANCET Building, 1, Bedford St., Strand, W.C.2.

---

## STERILITY IN WOMEN

By ARTHUR E. GILES, M.D., B.Sc., Ch.B., F.R.C.S., M.R.C.P., Senior Surgeon to the Chelsea Hospital for Women, Gynæcologist to the Prince of Wales's General Hospital, Tottenham.

Demy 8vo. Cloth. 243 pages. Illustrated. Price 10/- net.

"For the General Practitioner this is an ideal book, full of information."—*Medical World.*

"The best that has been written on the subject."—*British Medical Journal.*

HENRY FROWDE, HODDER & STOUGHTON, 1, Bedford Street, W.C. 2

---

By the same Author.

## DISEASES OF WOMEN.

With Sir JOHN BLAND-SUTTON.

7th Edition. WILLIAM HEINEMANN.

---

## GYNÆCOLOGICAL DIAGNOSIS. AFTER RESULTS OF ABDOMINAL OPERATIONS.

BAILLIÈRE, TINDALL & COX

---

56 Illustrations Cr. 8vo 9s. net, postage 6d

**PHYSICAL EXAMINATION OF THE CHEST, with special reference to Pulmonary Tuberculosis.**

By JAMES CROCKET, M.D., D.P.H., M.R.C.P., Lecturer on Tuberculosis, Glasgow University.

H. K. LEWIS & Co. Ltd., 136, Gower Street, W.C. 1.

---

SECOND EDITION. 20s. net.

BY

## HERBERT J. PATERSON,

C.B.E.; M.C., M.B. (Cantab.), F.R.C.S.

THE

## SURGERY OF THE STOMACH.

*A Hand-book of Diagnosis and Treatment.*

"A masterpiece among monographs."—*The Practitioner.*

JAMES NISBET & Co., London, W.

---

Now Ready. Second Edition. Pp. 157. Price 6s. net.

**MEDICO-LEGAL EXAMINATIONS and the WORKMEN'S COMPENSATION ACT**

By Sir JOHN COLLIE, C.M.G., M.D., J.P.

London: BAILLIÈRE, TINDALL & COX, 8, Henrietta Street, Covent Garden, W.C. 2

---

NOW READY. Demy 8vo Pp. xii + 196. With 50 Figs. Price 10s. 6d. net (postage 6d.)

## DISEASES OF THE HEART:

**A HANDBOOK FOR PRACTITIONERS & STUDENTS.**

*Containing an Account of Clinical Electrocardiography.*

By I. HARRIS, M.D., L.R.C.P.(Ed.), Hon. Physician-in-Charge, Cardiographic Department, Liverpool Northern Hospital.

BAILLIÈRE, TINDALL & COX, 8, Henrietta Street, Covent Garden, W.C. 2.

# ENFIELD-ALLDAY
10-20 H.P. CAR DE LUXE

## STAND 292 OLYMPIA

*"The Car that is different."*

IN every essential feature of modern car design the Enfield-Allday is much more than a light car. In design, construction, power, equipments, and reliability it compares with cars of higher rating and higher cost.

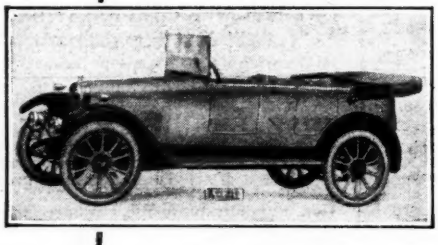
It is this "little more" that makes the Enfield-Allday so desirable a car. Costing no more than an ordinary light car, both to buy and run, it has that extra reserve of power, superior coachwork and little refinements that make "all the difference" to an owner-driver's full enjoyment of his car.

During 1922 the Enfield-Allday has won many premier awards for beauty of design in Club Rallies, and in Speed Trials two noteworthy achievements stand out to its credit, notably in the 200 miles race at Brooklands, a Standard Sports Model finished fourth, winning a Gold Medal, and averaging a speed of 76–86 m.p.h., and again in the Isle of Man 1,500 c.c. Race it was the only All-British Car to finish.

The 12 h.p. Model introduced for 1923, deliveries of which will commence in January is a still further advance in design and value. With a Four Speed Gear Box, increased Wheel-base and track, re-designed dashboard and special all-weather features it is a car worth waiting for.

| | | |
|---|---|---|
| **10-20 h.p. Four Seater** | **has been reduced to** | **£450** |
| **10-20 h.p. Two Seater** | **,, ,,** | **£445** |
| **10-30 h.p. Sports** | **,, ,,** | **£475** |
| **12 h.p. Four-five Seater** | | **£450** |
| **12 h.p. Two Seater** | | **£445** |

**Also Saloon, Coupe and Landaulette and All-weather Models.**



*Catalogues from—*

**ENFIELD-ALLDAY MOTORS, LTD.,**
**SMALL HEATH, BIRMINGHAM.**

# An Address
ON
# CERTAIN DEVELOPMENTS IN MEDICINE.

Delivered at the Opening Session of the Medical Society of London on October 16th,

BY

LORD DAWSON OF PENN, G.C.V.O., C.B., M.D.,
PRESIDENT,
PHYSICIAN TO THE LONDON HOSPITAL; PHYSICIAN IN ORDINARY TO H.M. THE KING; SENATOR OF THE UNIVERSITY OF LONDON.

We are opening to-night a session of no ordinary importance, in that during its course this society will celebrate its 150th anniversary. And may I here interpolate a personal paragraph and say how honoured I feel to be your President during this year, how deeply I value the confidence which your selection of me denotes, and how it will be a "labour of love" to try and serve you well? I shall be encouraged by the example of my distinguished predecessor in the chair—a surgeon in whom the thinker is not lost in the excellence of the technician, and whose wide culture and sympathetic personality give him a large circle of friends.

This society was born at a time of change; an old order in civilization was passing, the forces were gathering which were soon to culminate in the War of Independence—that mighty instrument of liberty which not only brought about the birth of a nation but gave to Britain by its influence a peaceable progression towards the freedom which was to mature in the ensuing century.

The life of this society has corresponded with a period of almost unexampled expansion. Thus in 1782 London had a population of 650,845 and contained 774 doctors, and the College of Physicians consisted of 43 Fellows and 74 Licentiates.* There were no medical schools then, and beyond the training of apprentices facilities for medical instruction consisted of detached efforts by enthusiastic teachers, and such lectures were as often given in private houses as in hospitals. The doctors' residences were extending beyond the City to the then West End, and were exemplified by such addresses as Essex Street, Strand (it was there Dr. Fordyce of St. Thomas's Hospital lectured), Craven Street, Leicester Street, Haymarket. There was no concentration of doctors as in the Harley Street area, and in that respect perhaps our forefathers were wiser than we are.

But this society, being full of youthful vigour, finds more interest in prospect than retrospect, and I have ventured to think that certain tendencies or developments in the art of medicine to-day might be worthy of your consideration; and if I restrict myself to a few of these I hope you will put it down to regard for the exigencies of time and your patience rather than to narrowness of the speaker's outlook.

Developments in the art of medicine are due to—

1. The extension of clinical knowledge.

2. The increasing number and range of the sciences on which the art of medicine is based. To mention these sciences here would be needless—their name will soon be legion. As examples I may refer on the physical side to biochemistry, and on the mental side to psychology. Both of these are making strong claims on our attention—the former in quietude and the latter amidst the noise of the market-place. In passing I may say that this extending range of medicine makes so big a claim on its devotees as to tend to draw them from contact with the humanities and produce the danger of exclusiveness.

3. Changes in the environment and life of the people. New knowledge brings benefits, but at the same time difficulties of its own. Through modern agencies like the newspapers, and the cinema, and now broadcasting, man's mind is being supplied with a restless stream of impressions which must work into and alter the texture of his mind, especially in youth. We cannot add to the speed and stress of life, as this age is increasingly doing, without modifying man's behaviour in health and illness. People are kept at high tension, and sometimes as much by their pleasures as by their work, and relaxation becomes a stranger to them, and with the oncoming of wireless telephony and aviation our last hope of peace is going. You are on your way to a consultation, say at Northwood or Walton Heath, having left suitable messages at home, and behold, you are rung up in your car on your wireless telephone to say that a patient is arriving from Aberdeen by aeroplane and has to be back at business by the following morning! No escape. These developments disturb life. It is a curious omission that no operation has yet taken place in an aeroplane! The career of the appendix would be incomplete without it, and a cinema operator would have by chance to be one of the passengers.

It results that mind plays a larger part in the causation of disease than in the past; that not only are neuroses more common, but in bodily illness mental symptoms are more often blended with the physical in the clinical picture. What I may style clinical values have changed. Even in organic disease there is commonly a superstructure of neurosis, which is apt to obscure the view. There are, in short, the symptoms more directly produced by the morbid process and the symptoms produced by the patient, and the latter may at times be the more prominent.

As a matter of experience, physicians would, I think, agree that clinical pictures have become more complex, their features more difficult to distinguish and estimate than formerly. And doctors often tell me that in their practices textbook pictures of disease are less and less common. Take that interesting condition, high blood pressure. In its early stage—the curable one—it is often a mental, not a bodily defect. Note the sensitiveness, anxiousness, conscientiousness—all defects of qualities, leading to tenseness of expression and then prematurely to set lines of feature; note also the increased tonicity of the muscles with a growing inability to relax them—an inability which will later extend to the hours of sleep.

In our rapid, complex social life exhaustion is not only the direct cause of much disability but its effects colour and complicate the clinical pictures of many diseases. In its manifestations, derangements of body and mind are found in close apposition and interaction. For instance, a tired professional man complains of pains in the heart or dyspepsia. Like many tired people he is hypersensitive and therefore has become over-responsive to the workings of his own vital processes as well as to the jars of the world outside. He then becomes introspective, then possessed of anxiety, and interprets his symptoms in terms of his fears; then follow preoccupation, failure of attention, ineffectiveness in work, loss of confidence, depression, self-depreciation—and so step by step into the zone of danger.

This blending of the physical and mental is illustrated again by certain gastro-intestinal troubles. The patient is usually a spare subject, with keenness and sensibility but without proportionate strength; goes through life "all out," has a shallow frame, a low blood pressure, easily chilled extremities, and an over-responsive abdomen, which reacts to every blast of vain doctrine. What are you to call a complex like this? You must label it by one of its features. Thank heaven for "colitis," but pity the poor statistician. The suprarenal may here be the link, perhaps the "transformer," between mental and physical. The grades and variants are manifold. Such features and factors enter more and more into the causes and manifestations of the illnesses of a modern community.

It follows, therefore (and this is my first plea), that they should not be pushed aside under the general label of "neurotic," nor should they be the exclusive concern of specialists. Rather should they be studied and taught upon in our hospital clinics, and, as they exist, symptoms of mind side by side with symptoms of body.

These problems, which the practitioner has to tackle, demand in a special degree the insight and discrimination which come from a bedside training and sympathetic contact with the sick, for the latter have sometimes difficulty in defining their symptoms and have to be understood rather than unduly questioned. Or again, symptoms which may be irrelevant to the immediate physical diagnosis (shall I say the affixing of the label?) may yet be of great moment in that they loom large in the mind of the patient; perhaps have roots in doubts and fears running far back into the patient's life, and need to be perceived, understood, and explained, and thereby dispersed, so that the patient's mind can be given content and confidence, and so reinforce the vital powers which bring about healing. It is this which Goodhart—always perceptive and illuminating—had in mind when, speaking of the "Common Neuroses," he said: "There are many conditions in which the cure must come mainly from within, our function in chief being to call out this dormant power."

* *Medicine in England during the Reign of George III*, by Arnold Chaplin.

The power to penetrate the patient's mind, to help that mind to unfold and to perceive where the burden presses most heavily—all that is part of diagnosis. The resulting confidence and inspiration in the patient's mind is part of treatment.

It is interesting to reflect how in this as in other respects the arts of Medicine and Education are approximating. The personality of the school child is perceived and understood, and thus encouraged to unfold, and it is led to discipline itself rather than have discipline thrust upon it. In its wider conception treatment is educational, and in the formation of health the territories of Medicine and Education overlap.

Mind training more and more needs to be a prominent aim of both Medicine and Education in order that people may be equipped to deal with the feverishness of their environment. We now have physical culture and training established as a valuable asset of curative and preventive medicine. We now need to give a corresponding place to psychical training. There are in existence the beginnings of such treatment; they are detached efforts, such as relaxation exercises and other measures dependent on the application of rhythm, training in mental detachment, etc. But they need developing and methodizing, and I suggest it is the profession which should do this—not irresponsible though worthy people outside.

These purposes of medical treatment are not new—they have always belonged to the English school of thought; they have been rather eclipsed these later days by progress in the objective methods afforded by radiography, chemistry, surgery, etc. It is curious they should recede into the background at the very time when the conditions of life make their need the greater, and my plea is that Medicine, if it is to fulfil its work, must take mind phenomena more closely into its study and keeping. At the present time they are occupying the public mind too much and the professional mind too little.

### Psycho-analysis.

The newer psychology is accepted with seriousness and almost fervour by widening circles of the laity and a group of medical specialists, but at present is regarded with doubt, if not with aversion, by the bulk of the medical profession. At the discussion on psychotherapy at the joint Section of Neurology and Psychological Medicine at the recent meeting of the British Medical Association at Glasgow, physicians attached to hospitals took no part. And is this attitude of mind to be wondered at? What has happened in the past? What is happening now? No sooner does a truth crystallize from honest thinking than it is obscured by encrustations of credulity, assertion, mysticism, and even fraud. Honest exponents drift with fatal facility into exaggerated claims and pretensions, and a superstructure of falsity soon overshadows the foundations of truth, and prejudice rather than conviction is the result.

The way in which all sorts and conditions of people without scientific training or medical knowledge not only discuss but seek to apply analytical psychology would be ludicrous if not so dangerous. And yet psycho-pathology is a serious science with a real and useful application to medicine, and is giving order and direction to methods which were empirical and haphazard. If given a wider recognition and consideration within the fold of medicine, where it would be subjected to restraints and controls, it would "speak forth the words of truth and soberness" and enrich the theory and practice of medicine.

Over psycho-analysis there is much misapprehension. The term comprises (1) the theory of the working of the unconscious mind; (2) the practice whereby the unconscious mind can be explored. Strictly the term should be limited to the particular theory and practice set forth by Freud and his immediate disciples. Many exponents, though accepting the basis of Freud's teaching, have departed from some of his tenets and methods and they seek to distinguish their work by the term "Analytical Psychology." They none the less are saddled by their critics with full responsibility for Freud's teaching, including his view that morbid and repressed complexes are associated with primitive sex impulses.

Though discussion of psycho-analysis is obviously beyond our purpose to-night it is worth briefly considering the ways and means of its presentation and handling, for I venture to think that therein is to be found the explanation of the heavy weather it is encountering.

And here a sharp distinction must be made between its theory and its practice. A theory or hypothesis put forward by a brilliant thinker and supported by a wealth of investigation cannot fail to enrich knowledge and be for the benefit of mankind, and this irrespective of its truth or falsity, provided it is expounded by those who are fitted to do so—which means, in the case of psycho-analysis, trained workers drawn from the ranks of psychologists, medical men, educationists, and surely it is widely accepted that the theory of the unconscious mind is a great work likely to exercise influence both on medicine and education. But if—as has happened here—all sorts and conditions of people delve into the subject confusion of thought and disturbance of mind must result.

But when it comes to the practice of psycho-analysis a much more serious position arises. Here we are dealing with a highly specialized method of diagnosis and treatment, which cannot be said to be without effect, either for good or evil or both, on the patient. It must often be an exploratory operation on the mind, and if you do not accomplish good you are not sure the result is negative. You cannot feel the same assurance as you do, in the case of an exploratory operation on the body, that at least no damage is done. The mind does not always heal by first intention. May not baneful influences thereby gain entry? Admitting that psycho-analytic treatment has its sphere of usefulness, under conditions of such complexity it is the habit in our profession for the treatment to be undertaken only by workers with specialized training, which ensures skill, restraint, and good judgement (this has been emphasized in a recent paper by Dr. Crichton Miller). Can it be said that these conditions are fulfilled in the practice of psycho-analysis? I fear not, and therein lies legitimate cause for criticism and alarm.

Too many of its practitioners are fanatics, who see neither limitations nor disadvantages and have no eyes for anything outside their narrow cult. This is unfair to competent and serious workers, who thereby get misrepresented, as has recently been illustrated by the joint conference of psychologists and educationists at the recent meeting of the British Association at Hull. I will briefly suggest reasons why psycho-analytic treatment calls for special caution. Its duration is both long and uncertain, extending, it may be, into months and even years. This is a great strain on the mind of the patient, who lives with a quickening sense of his own abnormality, and if the treatment does not suit him the danger of doing him damage is intensified. The operator (analyst) cannot control with precision the range of his operation: beyond the happenings he wishes to induce, others may result which are unsought and detrimental. Psycho-analysis induces and aggravates introspection, and is apt to produce morbid ideas. The laying bare of the unconscious mind—both the process and the result—injures some sensitive subjects and does harm by debasing them in their own estimation.

The dominant position asserted for primitive sex impulses in the causation of repressions aggravates the difficulties of psycho-analytic treatment. All medical men know how difficult is the handling of sex neuroses and aberrations, and how quickly by introspection "sex" will monopolize attention, distort judgement, and pervert conduct. The difficulties on the educational side, where youth is concerned, are even greater. The analyst who holds the Freudian view that the primitive trends of the mind are mostly sexual in origin cannot but be influenced by that bias in the treatment of patients, who likewise will feel its reflected influence.

Lastly, there is a factor in psycho-analytic treatment which presents difficulties of its own. I refer to "transference," which means that emotions and fantasies awakened in the patient by the analysis are detached from their original associations and reincarnated in the analyst, who thus becomes a partner in the life of the patient; or, to quote, "earlier experiences are revived, not as past ones, but in the form of a current relation to the person of the physician."

Is not such a relation of physician to patient putting too big a strain on human nature, and might not positions of danger be provoked? It may be that in practice these difficulties are less apparent, but frank discussion is needed if doubt and misgiving are to be allayed.

Once more the conclusion is the recognition by the profession of the increasing importance of the study of mind in health and illness. Within the fold that study will regain the perspective and restraint which in its present position of isolation it has lost.

### Hostels of Health.

Another development in medicine is the growing interest in the beginnings of disease. Within the profession this

interest has received inspiration and direction from Sir James Mackenzie. The conception, birth, and vigour of the Institute for Clinical Research at St. Andrews constitute the climax of one of the remarkable careers in the annals of present-day medicine. This work is beneficent, not only for the direct results it is achieving, but for its influence in bringing back men's minds to the fundamental importance of studying the patient—a study which had become somewhat overshadowed by the advances in laboratory methods.

From another aspect biochemistry will, I venture to think, more and more throw light on the changes premonitory of disease. By the co-ordination of the two methods of inquiry the surest progress will be achieved.

Corresponding to this trend of thought within the profession there is a notable change in the attitude of the public, in whose mind health has become a positive conception, and is no longer regarded as the same thing as freedom from disease. Strength and perfection of frame are coming to be regarded as both a duty and pride of achievement, and people will pay more attention to digression from this high standard. To be too fat or purple and breathless in the prime of life will be the object of censure, just as now it is considered bad form to have a neglected mouth. As a result—if I may indulge in prophecy—methods of treatment will alter. For these early departures from health will not hostels of health replace hospitals to cure disease?

While continuing his employment the man who is lapsing from anatomical or physiological rectitude will reside in a hostel for a brief space, and under a suitable régime of rest, exercise, diet, training, and other treatment will be restored to the joy of fitness. At present this growing sense of the value of health is too exclusively concerned with the physical aspect. The importance of mind health, however, will in time gain recognition unless its significance is obscured by wild advocacy. And that recognition will be followed by a greatly needed change in the opinions and demands concerning popular recreations and amusements.

### Organization of Medical Institutions.

In conclusion I will consider, briefly, developments which affect our medical organization.

Growth of medical knowledge and the increasing number of sciences associated with it are steadily making diagnosis and treatment rest on collective rather than individual efforts. Collective effort, to be efficient and economical, needs to be aggregated into organizations. It follows that institutions especially equipped as hospitals and clinics, with their laboratories and accessories, will be necessary throughout the country for all classes if the best that medicine can give is to be at the service of the nation.

If we approach the question from an economic point of view the conclusion is the same. Complexity in diagnosis and treatment means increased cost, and as the cost increases the number of people who can defray that cost grows fewer. The result ensues that from this point of view the more medicine improves the less well are people served. The remedy is clearly massed production, which means institutional organization.

The conditions of family and social life point to the same conclusion. At the present time a large and increasing proportion of the population is not getting the best opportunities in illness. Those who frequent existing hospitals are the rich and the poor, but that large mass of people of moderate means (and with existing taxation the word "moderate" carries increasing emphasis) does not.

This is a reproach. It is unfair to the individual and is to the disadvantage of the community. The public very properly looks to us to say what the remedy should be. Its provision requires the co-operation of the public, but it is for us to indicate its nature and guide its application. Hence the importance of agreement amongst ourselves.

Since the growth of such institutions must be gradual it is the more important that the early ones should be on the right lines, so as to set up a good standard for achievement. I will briefly put forward for discussion some of the conditions which in my judgement should be fulfilled.

I. They should be run on economic but not commercial lines. A fixed percentage (say 6 per cent.) should be paid on the capital and the rest of the profit should go to improving the equipment and usefulness of the institution.

II. The laity should co-operate in the administration. The technical direction should be under a committee of medical men. It would be better for the bulk of the capital not to belong to members of the medical profession. There should be grades of comfort and luxury to suit varying pockets, but, needless to say, only one standard for all essentials, and that the best.

III. There should be provision for a proportion of patients who cannot defray the cost of their treatment. The cost to all others would be at and above a basic economic charge. Professional fees could be included in, or be independent of, the charges for the use of the institution, but broadly the principle that fees are an arrangement to be made between doctor and patient should be maintained.

IV. Patients attending such institutions would retain their own doctors. The idea must never grow up that these institutions are homes for specialists only. There is an advantage in a consultant having an allotment of beds and his own equipment. That gives him his private workshop and yet he rubs shoulders with colleagues. One-man institutions are a mistake from any point of view.

Should such institutions be built as annexes to existing town hospitals? Speaking generally, and in my opinion, emphatically not. Hospitals are situated where the benevolence and conditions of former days put them. No one would put them in their present positions if building them now. An institution such as I have tried to adumbrate should be near enough to the edge of the city to secure adequate space and air.

Such an idea has been realized in part in a few localities—for example, St. Chad's, Birmingham—but not in its entirety.

Institutions on these lines would solve the problem from the point of view of efficient medical treatment, and also for the people better placed from the point of view of cost. But they would not solve it for the people of small means—say those earning £500 to £500 a year. Such as these cannot even under the conditions above described defray the cost of a serious illness out of income or savings. And yet they must be provided for.

The only way I see is through some system of insurance. A State system of insurance for this purpose is neither desirable nor feasible. I should like to see the big insurance companies take the matter up, and cannot but think they would, if assured that the business would meet a public need and receive strong support. I know there are difficulties, such as the question of adequate control without ruinous charges for supervision, but they should not be insurmountable.

I put forward these suggestions for discussion with the strong conviction that it is for the profession to hammer out the best lines of development and give the public responsible advice.

The discussion to-night might perhaps be usefully resumed at a later date.

## THE LIGHT SENSE, WITH SPECIAL REFERENCE TO NAVIGATION.

BY

ANDREW FREELAND FERGUS, M.D., LL.D., F.R.S.E.,

CONSULTING SURGEON, GLASGOW EYE INFIRMARY.

THE last fifty or sixty years have seen much discussion and not a little controversy in this and other countries as to the condition of the eyesight of those entrusted with navigation. Even as far back as 1882, when I was in the laboratory of Donders at Utrecht, certain aspects of the same subject were being investigated, for the colour sense of the railway servants was being examined under his direction. It is not my intention to review in any detail the history of the movement, but rather to point out our present position.

As a preliminary I would like definitely to enumerate those functions of vision which seem to me to be necessary for navigational purposes. These are at least four: (1) good visual acuteness; (2) sufficient form sense, or, as I prefer to call it, field vision; (3) approximately normal colour perception; (4) good light sense.

I felt inclined when drawing out the rough outline of this communication also to include binocular vision. A navigator is none the worse of having binocular fixation, but it is by no means necessary, for I have frequently known officers and seamen of the mercantile marine who had each only one useful eye.

It may seem strange to those who have not followed the controversy as to colour testing, but yet it is true, that persons with defective colour perception have been known to navigate

for many years without on any occasion mistaking the colour of lights. The vast majority of colour-blind persons, however, are dangerous, and it is so difficult to define the limits of safety that I do not object to all persons who are definitely colour-blind being rejected by the Board of Trade.

In passing it may be said that there are several factors which enable a colour-blind person to distinguish between the mast-head and port and starboard lights. To begin with, they invariably differ from each other in what may be called essential luminosity—in other words, their kinetic values, if I may be allowed the expression, are different. Much also seems to depend on the form of colour-blindness. Twice during the controversy on colour testing I found myself in acute disagreement with Sir William Abney. In his well-known book on colour-blindness he gave, in the form of spectra, what he believed to be the colour sensations of colour-blind persons. I think the same diagrams also appeared in the report issued by the committee appointed by the Royal Society. Now inspection of these diagrams showed that he represented the warm and the cold ends of the spectrum as occurring in the different forms of colour-blindness as all but invariably distinctly differing in tint. Were that true, then there could scarcely have been such a thing as dangerous colour-blindness. Nor could I agree with the distinct preference which he gave to Holmgren's wools as a test when he gave evidence before the departmental committee of the Board of Trade. He objected to a lantern test on the ground that the colours exhibited by the lanterns were not pure colours; it never seemed to occur to him that the colours of the wools were equally mixed colours. At any rate, I have never found on spectroscopic examination any wool to give a pure colour. Although I do not altogether like Dr. Edridge-Green's recently published book, I do like his lantern; it seems to me to be a thoroughly reliable test, and the Board of Trade has been well advised in adopting it. This, however, is an echo of a past controversy, and is only mentioned because it illustrates that a good light sense may play a part, although only a subordinate part, in the recognition of lights at sea.

In the next place, I will once more enunciate the difference which I drew a considerable number of years ago between visual acuteness on the one hand and the form sense—or, as I now call it, field vision—on the other; for, so far as I can see, the form sense, or field vision, very largely depends on the light sense. To my mind visual acuteness, strictly so called, is the power of reading ordinary small type, and is purely a macular function. It is best illustrated in the following manner. If a person looks at any page of printed matter and fixes a word at the centre of the page he or she will find that, so long as the attention is directed to the word specially selected, the other words on the page, with perhaps the exception of one or two in the immediate neighbourhood, are quite indistinct. That part of the field of vision which is specially adapted for macular vision I have elsewhere called the "field of visual acuteness." It subtends an angle of only a few degrees at the first nodal point of the eye; its shape differs slightly in different individuals, but, roughly speaking, it is more or less circular. So far as I am aware, it has never been thoroughly investigated.

I reserve the phrase "field vision" for a different set of visual impressions. If a person looks at a particular word in the manner already suggested, and studies his own sensations while doing so, he will find that he is quite well aware of other objects in his neighbourhood. Thus he may be aware that there are other people in the room, although he will be quite unable to recognize them. He also may be aware that there is a clock on the wall and see its general shape, although he will be unable to read the time unless he turns the field of vision on the object. All that part of the field of vision which lies outside the field of visual acuteness I call the "field of form sense." It certainly subserves, if I may so say, at least the following functions—namely, the recognition of shape, of colour, and of differences of luminous intensity; that is, it has light sense. As I shall indicate presently, it is this last that is of special importance for certain purposes of navigation.

A single instance will show what is meant by its function of shape. When the person looks at the selected word, if there be other people in the room he will at once be able to tell that the heads are more or less round, and will be able to distinguish the shape of the shoulders and other parts of the body. He will also have a fairly good idea of the form of the different articles of furniture in the room. It is unnecessary to say anything about the colour perception functions of the periphery of the field, for they are well enough known to every ophthalmic student who has worked at colour perimetry.

Before saying anything about the perception of differences of luminosity in the field external to the macular area there is one line of thought that I wish to introduce at this point. It is perhaps best introduced by the general statement that in most forms of manual work, and in most acts of daily life, the workman uses what, for want of a better name, I have called his form sense or field vision, and not his visual acuteness; so also, in walking along a thoroughfare, it is the field vision that enables one to avoid collision with other passers-by; it is only a small minority of them that we see sufficiently distinctly to make recognition possible. Another very striking example will further indicate my meaning. In the process of coal-mining the visual acuteness is scarcely used at all; it is chiefly the light sense, for that is what is required to distinguish genuine coal from what is technically called dirt. No doubt, if the miner be of a scientific turn of mind and wishes to examine the fossils contained in the coal measures, he will require to use his visual acuteness, but otherwise he carries on his operations by the field vision, and particularly by that part of it which is called the light sense. Two colliers whom I examined recently on account of miners' nystagmus were found each to have an enormous amount of myopia—roughly, about 18 or 20 diopters—and yet, till the nystagmus supervened, they experienced no difficulty in their work so far as vision was concerned.

At the Toronto meeting of the British Medical Association (1906) I instanced a case of another collier who had about 12 diopters of myopia, and who never suspected that there was anything wrong till he tried to get into the service of a railway company. Now in the first two cases there was no visual acuteness possible, in the proper and restricted sense of the term, at a greater distance than three or four inches from the eyes, and in the last case the extreme distance of visual acuteness was not at a greater distance than four or five inches from the eyes.

The above statement, speaking in general terms, is quite true, although I am well aware that it would have to undergo slight modifications were we to proceed to the discussion of the mental interpretation of blurred images—a very intricate subject to which I would most respectfully call the attention of the psychologists. Manual work has little to do with visual acuteness, as I have shown elsewhere; it practically depends on the field vision and on the sense of projection. Failure to realize this important fact may even lead to a miscarriage of justice. For example, in one case which I was assessing with the Sheriff, a surgeon who had seen the patient on behalf of his union reported, "Visual acuteness of the eye is 6/9 Snellen," and not long afterwards another surgeon reported, "The vision of the eye is 6/18." The learned Sheriff, who was arbiter in the case, immediately and very naturally came to the conclusion that if the visual acuteness was at one period only one-half of what it had been a few weeks before the patient was in a bad way. It was pointed out that the certificates were wrong in form, and that the medical examiners could not tell what the vision really was, but could only record what the patient had thought fit to admit in their presence. I further managed to get the Sheriff to realize the important fact that for the work in which this man was engaged visual acuteness was scarcely required at all, but only field vision. The examination of the visual acuteness is a matter of practically no importance in such cases.

Perhaps I may here be allowed to state my strong preference for Landolt's broken-ring types to any others. No doubt Snellen was the first to standardize visual acuteness, and at present his types are those which are all but universally employed. Thus visual efficiency is expressed in terms of Snellen's types for the navy and army and for the examinations demanded by the Board of Trade. There is, I think, no doubt that Landolt's tests are much more satisfactory than those of Snellen, although Snellen had the great merit of being the first to standardize visual acuteness in terms of the five-minute angle. Landolt's types are equally useful for literates and illiterates. Moreover, I think something is gained by their being circular in form; by their use we can get much greater uniformity than by ordinary letters of the alphabet, which are more or less irregular in shape. Probably the best proof of the defects of test types composed of ordinary letters is the fact that the letters of the same size in a particular line are frequently not all easily read. The only change I would make in Landolt's types is

to have a good number of each of the sizes of the broken circles printed on the card, the break in the successive members of the same line being put at different angles; either that or to make each of the broken circles to rotate so that the angle at which the break occurs may be varied. I beg respectfully to suggest that the Board of Trade be urged to adopt the principle of Landolt's types and to scrap those in ordinary letters because of the irregularity in each line of the latter.

The investigation of the light sense is a matter which I fear is too much neglected. I think its proper examination would often be most helpful to physicians and to neurologists. Probably it is the first function of the optic nerve to become affected in impending diseases of that structure. I am also of opinion that its examination would frequently reveal such diseases as sclerosis and locomotor ataxy in the early stages; but, so far as I am aware at the moment, it is almost entirely neglected in clinical work in medical wards. In a previous part of this communication I have distinguished between what I call macular vision and field vision, and I think it might be of great utility if apparatus were devised to enable the light sense of both macular vision and field vision to be thoroughly investigated separately. At present there seems to be little hope of any such thing being done in the United Kingdom. I am not aware of there being anywhere a thoroughly equipped laboratory for the ophthalmic investigation of disease.

The examination of the light sense should be considered under two headings: first, the examination of the minimum light sense; secondly, the examination of the light difference sense; for both of these functions are important as regards the eyesight of seamen. Recently, considerable light has been thrown on this subject by Mr. Percival of Newcastle-on-Tyne, and he has invented apparatus which is probably the best for testing these important functions. Many years ago I devoted some attention to the testing of the light sense. For the testing of the minimum light sense I used what was to all intents and purposes a Foerster's light sense box, and for testing the light difference sense I used a spot of light seen double through a rhomb of Iceland spar. The double spot was examined by means of a Nicol's prism, which was arranged to rotate about its long axis, the amount of rotation being indicated in ordinary degrees on a scale. The difficulty of course was to determine the zero with such an apparatus—in other words, the place at which both spots appeared equally bright. This was done by adjusting the apparatus so that they seemed to have the same luminosity; the Nicol's prism was then turned in one direction till the spots appeared to differ very slightly in luminosity, and the point at which that occurred was carefully noted on the scale; the prism was then turned in the opposite direction till again a difference was observed, and the spot at which this occurred was also noted; the point on the scale midway between these two positions was taken to be the zero.

I have no hesitation, however, in saying that Mr. Percival's test is a very admirable one. It is much more easily arranged than the somewhat complicated one I have described, and I think ought to be used by the Board of Trade in the testing of seamen's eyesight. The value of such an examination is perhaps best illustrated by the following incident which occurred in my own experience. Once coming in from the Western Ocean, making for the Clyde, several officers of a steamboat were busy trying on a misty day to see one of the islands lying off the west coast of Ireland. Some of them were quite certain that they had seen it, others altogether failed to see it; that I think was probably due to the light difference sense of the officers who failed to see it being defective. On dark nights in narrow waters where the shore lighting is defective the light difference sense is of the first importance. A person with defective light difference sense on such a night is likely to have great difficulty in determining where the water ends and the land begins. So also it is to be observed that such impediments to safe navigation as icebergs and waterlogged derelicts do not carry lights; a man with a defective light sense will not see these dangers as easily as a man with good light sense. I cannot but regard the matter as being one of extreme importance.

Visual acuteness in the strict sense of the term is of importance in navigation. Thus an officer will not be able to read charts or tide tables or the various instruments used in navigation unless he has good macular vision, nor will the ordinary steersman be able to read a compass card unless he also has good macular vision. It is therefore of great importance in these respects. The picking up of objects at a distance, such as other vessels or buoys or a land fall, is not necessarily a function of macular vision at all, but is chiefly a function of field vision, and very especially of the light difference sense. The images of most objects seen at sea are not, of course, primarily formed on the macula but on some peripheral point of the retina—in other words, the appeal first comes to the field vision and not to the macular. No doubt in a very large proportion of cases, when a new object appears on the horizon line, and by the field vision the officer becomes aware that it is there, he instinctively looks directly at it to see what it is and thus brings the object into the macular field. If, however, the light difference sense be defective there is a very much increased chance that the new object will not be seen at all, and danger may ensue therefrom. Long years ago I advocated strongly that the light sense of all men entrusted with the duties of an officer of the watch should be carefully tested, but up till now, so far as I am aware, no steps have been taken to bring about this desirable change. At that time the apparatus available was not very suitable, but the circles introduced by Mr. Percival seem to me to leave nothing to be desired.

One other question remains to be mentioned, although I am sorry to say that I am not in a position to give any answer—it is as to the effect of errors of refraction on what I now call field vision. I have already pointed out that very high degrees of myopia do not hinder a man from working, and that satisfactorily, at coal-mining. Navigation, except for the reading of charts and other documents and the necessary instruments of navigation, does not involve, or hardly at all, macular vision, but does involve field vision. The question then arises, Can a man with a moderate degree of myopia safely navigate? I am not prepared to give a dogmatic answer to this important question. At the same time if the myopia be high I think it would form an insuperable barrier to his being put in charge of a vessel. Personally I have provided myself with convex glasses of 3 diopters when at sea, and certainly the artificial myopia induced thereby would have rendered me quite incapable of performing navigational duties. Still it must be remembered that that is an artificial myopia, and that I had not been in the habit of subconsciously interpreting blurred images. On the other hand, I have known a master mariner who commanded a ship for some years, and who had a myopia of about 2 diopters in each eye, a condition which presumably had been with him for most of his life. It is just within the range of the possible that a man who has had for most of his life a fair amount of myopia, and who has been interpreting the consequent blurred images, may be quite fit for navigational duties. The work of a man on the look-out is not a function of macular vision, it is a function of field vision, and although I have no data to go upon, except the case of the master mariner just mentioned, I think it is quite possible that even with a fair amount of myopia the field vision is sufficiently good to render a man safe when on the look-out.

The two points which I desire to emphasize in this paper are: first, that for navigation the light sense should be tested as carefully as the colour sense; and secondly, that most manual work does not depend on macular vision at all, but on what I have called field vision, and that therefore it is idle to attempt to evaluate manual efficiency in terms of visual acuteness as above defined.

## THE MECHANISM OF HEARING.

BY

SIR W. M. BAYLISS, F.R.S.

ALTHOUGH from time to time objections have been made to the theory put forward by Helmholtz that the basilar membrane of the cochlea acts as a series of resonators and that by its means analysis of compound sounds is performed in the peripheral receptor organ, it has to be admitted that rival theories present at least as many difficulties. Theories in which this membrane acts as a whole, like a telephone diaphragm, or by "pressure patterns," are inconsistent with the differentiation of structure along the membrane and with the newer knowledge of the conducting properties of nerve fibres. For these reasons the views put forward by Rutherford, Waller, Wrightson, and Ewald cannot be accepted.

In a recent paper Mr. George Wilkinson, F.R.C.S., of Sheffield, also points out that those of Meyer and of Ter

Kuile, if applied to a series of impulses, really amount to sympathetic resonance. In the paper referred to[1] Mr. Wilkinson describes the construction and properties of a model made with careful adherence to the proportions and nature of the cochlear mechanism. It is by far the most important recent contribution to the knowledge of the problem. Very little attention had previously been given to the experimental investigation of the physics of resonant vibrators immersed in liquid. Professor McKendrick had shown that a series of metallic reeds immersed in water was capable of sympathetic resonance, but the system was apparently thought too far removed from the actual structure of the basilar membrane to throw very much light on the behaviour of the latter. Mr. Wilkinson's model is a great advance. It was shown to the Physiological Society in December, 1921, and to the British Association in September, 1922. Details of the mode of construction, in which various difficulties were successfully overcome, must be read in the paper. The mechanician of Professor Leathes's laboratory, Mr. C. E. Stewart, is to be congratulated on the result. It consists essentially of a series of strips of very fine phosphor-bronze stretched across a gap in a brass plate and soldered to this at both ends. The gap is wider at one end than at the other, in order to give a graduated series of different lengths. The strips were first soldered at one end, then stretched by a series of weights, and while under tension soldered at the other end. The whole was then coated with gelatin to form a continuous membrane, leaving a gap at one end (the "helicotrema"). This structure was made to form the division between two closed chambers of water (the "scalae") into which the two "windows," closed with india-rubber, opened. On one of these a little wooden rod ("stapes") was cemented. The top of the upper chamber was formed by a glass plate. Finely powdered blue enamel was distributed over the membrane to indicate the region of vibration when tuning-forks of various period were applied to the "stapes." The lengths and tensions of the strips, as also the dimensions of the chambers, were carefully calculated, but the vibration rates turned out to be higher than those expected. This is, of course, partly due to difficulties in construction and probably also to the omission of some unknown factors which complicate the formula.

It will be remembered that the rate of vibration of a string depends on three factors. It is directly proportional to the square root of the tension, inversely proportional to the length and to the square root of the mass. As regards the first of these factors, it was early recognized that the difference in length between the fibres at the two ends of the basilar membrane was insufficient to account for the range of pitch perceived, but it was sometimes overlooked that, as Dr. A. A. Gray has shown, there is also a difference in tension, such that the shorter fibres in the membrane are more tightly stretched and the range hereby increased. The mass of the vibrating element was mentioned incidentally by Helmholtz in referring to the membrane being weighted by the liquid in which it lies. But the real importance of this factor was first pointed out by Mr. Wilkinson. He shows that each element of the membrane is to be considered as consisting, not only of the fibre itself and the cells covering it, but also of two columns of water reaching from each element to each window, one on each side. This mass of water vibrates with the fibre, greatly increasing its mass and lowering its rate of vibration. Since the shorter columns are nearer the windows and the shorter fibres of the membrane are at this end of the cochlea, the range of response is further increased, and the reason why the basilar membrane is narrower at the base than at the apex of the cochlea is clear. It is further clear why the membrane must be a continuous one, because, if the fibres had gaps between them, no regular loading of the fibres would be possible.

Passing to the behaviour of this model, it was found that when the "stapes" was touched lightly with a vibrating tuning-fork of 32 D.V. the membrane responded only at one extreme end. Sixty-four D.V. gave a fairly local response about one-third of the way along. To 200 D.V. there was a response at about the middle, below the calculated position, with a partial response at the position for 100 D.V. To 400 D.V. the reaction was close to the calculated point, with a well-marked partial vibration at the 200 D.V. position and a less marked one at that for 100 D.V.

The model is probably capable of further improvement, but it appears that many important investigations might be made in its present form. The degree of damping and the extent of spread of resonance may be mentioned. It may be pointed out that some degree of resonance of adjoining elements is not contradictory to the theory of Helmholtz. The amplitude of vibration of these is probably too small to stimulate the nerve endings. Gray has shown that a similar cutting out of the smaller stimuli occurs in the localization of a point of pressure in the skin.

One fact of interest may be referred to in conclusion. The model responds also to a tuning-fork held in contact with the brass case, just as does the cochlea to conduction through the bone. This indicates that the impulses given by the movements of the stapes are of the same nature as those of sound waves directly transmitted to the water, as would be expected from theoretical considerations.

[1] Analysis of Sound by Resonance, *Journ. of Laryngol. and Otol.*, September, 1922. Also a brief account in Proc. Physiol. Soc. in *Journ. of Physiol.*, vol. lvi, p. ii (February, 1922).

## LUMINAL IN MIGRAINE.

BY

WILFRED HARRIS, M.D., F.R.C.P.,

PHYSICIAN FOR NERVOUS DISEASES, ST. MARY'S HOSPITAL, AND TO THE HOSPITAL FOR EPILEPSY AND PARALYSIS, MAIDA VALE, LONDON.

PAROXYSMAL recurrent headaches of hemicranial type are so common, and hitherto have been so difficult to diminish either in severity or frequency, that the apparent success of a new remedy which I have been using in this distressing complaint for the past year is, I think, sufficient justification for putting my results before the profession in order that others may test its value, I hope with similar good effect.

The close relationship of true migraine to epilepsy, as one of the paroxysmal neuroses, resembling epilepsy in being preceded often by an aura and succeeded by violent headache, suggested originally the treatment of migraine by prolonged administration of bromides in various forms and combinations. In my hands bromide has practically proved a failure in the treatment of migraine, though in a few cases aspirin, and in others cachets of pyramidon (gr. vij) with cannabin tannate (gr. iij), have notably cut short the duration of the headache if taken immediately after the attack is recognized. Migraine subjects almost invariably visit the oculist before the neurologist, and glasses are often ordered, though very rarely is true migraine improved thereby. Dieting of various kinds, reasonable and unreasonable, is also usually tried, the attacks being spoken of as liverishness, dyspepsia, or bilious headaches. A diet of milk and nuts alone has occasionally been said to cure a tendency to frequently recurring headaches.

Some headaches, doubtless, are of intestinal toxic origin, such as a chronic appendicitis; others, as we know, may be due to errors of refraction, nasal obstruction, pyorrhoea, etc., and may yield to the appropriate treatment. Such headaches must, however, be differentiated from migraine, which in its more characteristic type is notably hereditary, frequently unilateral (hemicrania), and often preceded for twenty to thirty minutes by a visual aura known as a scintillating scotoma, with temporary marked diminution of visual acuity. Nausea and vomiting usually follow the headache, sometimes occurring early, often delayed for hours, when the vomiting appears to relieve the headache.

Migraine may alternate with epilepsy in the same patient or in different members of a family, and I have known the same visual aura of scintillating scotoma herald both the epileptic and migraine attacks to which a boy of 13 was subject, whose mother was also a sufferer from migraine. The striking success of luminal in a considerable number of epileptics, who might justly be labelled "bromide failures," is now beginning to be common knowledge, through the writings of Golla and others, though at the same time a few cases, especially in children or young adults, seem to do definitely worse on luminal than on bromide, having more frequent attacks and greater mental torpor. In my experience I have found that it is the epilepsies in children, associated with some organic cerebral lesion, such as an infantile hemiplegia or congenital mental defect, without any family history of epilepsy, that are especially likely not to be benefited by luminal.

In analogy, therefore, with the successful treatment of some of the "bromide failure" epileptics with luminal, it occurred to me to try the effect of this drug in obstinate and frequently recurring migrainous attacks. I may say at

once that so far—and I have been using it thus for about a year—I may call its success most gratifying, both the frequency and the severity of the attacks being enormously reduced.

The action of luminal is sedative and hypnotic, and it is chemically a derivative of veronal or of its sodium salt medinal, which is much more soluble. Luminal differs structurally from veronal in that an ethyl group $C_2H_5$ is replaced by a phenyl group $C_6H_5$. Its action is much stronger than that of veronal or medinal, 1½ grains of luminal being perhaps equivalent to 7½ grains of medinal in hypnotic effect.

Luminal is put up in 1½-grain tablets, or it may be used as a powder in cachet or given in solution. Two examples of its use in migraine may be given as illustrating its effects, though they could be multiplied.

CASE I.

Mrs. X., aged 56, since girlhood always subject to headaches, especially severe at the menstrual periods. Never neurasthenic, but rather placid. Headaches very severe during last twelve years, and especially frequent during the last three years, latterly every ten or fourteen days. The attacks are preceded by an aura of visual defect, and followed by nausea and vomiting and complete prostration. Each attack lasts two or three days. Any excitement, fatigue, journey, or theatre or other entertainment is apt to bring on an attack. The attacks on the right side are always more severe than those on the left. The menopause became completed about eighteen months ago, but this made no difference to the frequency or severity of the attacks. Intense mental anxiety in December, 1914, appeared to aggravate the headaches and produced sleeplessness, which persisted. All forms of medicinal treatment, massage, and electricity are said to have been tried, without much avail, massage to the back of the neck alone giving some temporary measure of relief. Luminal in 1½-grain doses, three times a day, was then started, but after a few days the dose was diminished to 3/4 grain three times a day on account of extreme drowsiness and inco-ordination of movement. The half-dose suited well; she slept very well, and when she reported seven weeks later there had been no attack at all for the past five weeks, and she felt altogether greatly improved and able to take interest in affairs as she had not been able to do for years.

CASE II.

R. P., a man aged 30, has suffered from migraine for the past three years, gradually increasing in frequency, lately every week or ten days, while recently he had four attacks in three days. The attacks are preceded by partial blindness lasting about an hour, which is followed by violent headache for two or three hours. On May 23rd last I gave him 1 grain of luminal, with a little bromide, belladonna, and arsenic three times daily, and up to the present date of writing (August 15th) he has had only one attack, on June 17th, while away on holiday and while he had been without his medicine for ten days. This morning he writes that he has just had an attack of partial blindness, with a feeling of dazed "far-awayness," lasting for thirty-five minutes, but with no headache following, and he is exceedingly grateful for the improvement in his condition.

The dose of luminal should as a rule be not more than 3/4 grain three times daily at first, and if the result is good the dose need not be increased, but after a fortnight may be reduced to twice daily, and later to once daily, at bedtime. Occasionally larger doses, as 1½ grains three times a day, may be required to produce a good effect, but if this dose is made a routine at the commencement of treatment toxic symptoms will often be met with, such as excessive drowsiness, inco-ordination of the limbs, and a sensation of unreality in relation to surroundings.

After continual administration of the drug for a week or more, various cutaneous rashes may be seen, such as erythema, urticaria, and a macular pink blotchy eruption, perhaps followed by dry branny desquamation. These rashes are unlikely to occur if an initial dose of 1/2 or 3/4 grain three times a day is not exceeded.

If migraine or other headaches are associated with sleeplessness, luminal is especially indicated, and 3/4 grain three times a day will usually give refreshing sleep every night, such as the patients have not known perhaps for many months. This coincident relief of the insomnia and of the distressing headaches is a most striking evidence of the value of this treatment. How long to continue it must be settled by further experience.

At present, after two weeks' administration of 3/4 grain of luminal thrice a day I reduce the dose to twice daily (morning and evening) for another fortnight, and then to a nightly or even occasional dose of 1/2 or 3/4 grain for three months or even more. Many sufferers from migraine will, I expect, require to take it occasionally, once or twice a week, indefiniely.

NINETIETH ANNUAL MEETING

OF THE

# British Medical Association.

*Held at Glasgow, July, 1922.*

## PROCEEDINGS OF SECTIONS.

## SECTION OF ANATOMY.

Professor ALEXANDER MACPHAIL, M.B., C.M., F.R.F.P.S., President.

### PRESIDENT'S INTRODUCTORY REMARKS.

THE PRESIDENT, in his opening address, extended a hearty welcome in the name of Professor Bryce and the Officers of the Section to the members assembled from all parts of the country. He congratulated the Council of the Association on having included an Anatomy Section at this meeting: it was good for the scientific side of the work of the Association and it was good for the science of Anatomy. Anatomy must ever remain the very corner stone of medical education and research; yet in these days of a crowded curriculum and growing specialism in science there was danger of the clinician and the anatomist losing touch with one another. He had seen it stated that in our day any attempt at research in human anatomy was comparable to the process of "flogging a dead horse." This might be refuted in many ways, but by none more appropriately on this occasion than by reference to the remarkable presidential address delivered the other evening by Sir William Macewen; in each advance in the treatment of disease recorded in that address nothing was more striking than the extent to which exact and elaborate anatomical research—on the growth of bone, on the potentialities of the pleural cavity, on the intricacies of the membranes and circulation of the brain—gave the keynote of success to the brilliant series of remedial operations devised by their distinguished President.

He wished, before proceeding to the main subject of his address, to express grateful memories of his teachers of bygone days in the anatomy department of the university where now they met. His revered professor—and "Chief" for several years—John Cleland, was a giant in intellect as in stature; his lectures, though often far above the heads of all but his most brilliant students, were never "dry"; through all there gleamed golden veins of philosophy and poetry and high ideals of work and service; even the most junior student felt from the first that in his classes he had come under the influence of a great and a good man; his creed of industry and discipline was so exacting that incurring his correction was like breasting a mountain burn in flood; but his anger as quickly subsided, and the exceeding kindliness which followed more than compensated for the spate of terror. The wonderful record of his research and exposition—accomplished at a period when mechanical aids were few and imperfect compared with modern resources—cannot be adequately dealt with here: but a saying of the late Professor D. J. Cunningham might be recalled, with which he ended a review of Cleland's Textbook, that the high quality and the great diversity of Cleland's work might well elicit, in the breast of any anatomist, feelings both of admiration and of despair.

He wished to congratulate Professor Bryce very heartily on the happy thought which led him to group together in his museum the anatomical preparations of William Hunter, Allen Thomson, and John Cleland. No Anatomy School in the world could claim a richer heritage. He suggested that it would be a graceful act to direct the Secretaries of the Section to send a cordial greeting of its esteem, with the affectionate remembrance of those members who had been his students, to Emeritus Professor Cleland, who had adorned for so many years the Chair of Anatomy in the University whose hospitality they were now enjoying.

He desired also to voice the gratitude and affection with which all their old students in this University regarded Yule Mackay and Bruce Young, the most distinguished among Cleland's assistants, and in conjunction with whom he issued the notable volume of *Memoirs and Memoranda in Anatomy*. The hope that a second volume would appear—rich in the same high level of observation and research—was, unfortunately, never fulfilled; the recognition of his great administrative ability by colleagues in University College,

Dundee, and of his practical grasp of educational ideals and problems by the General Medical Council, had robbed science of the continuance of the valuable researches achieved by Principal Mackay, particularly in the development of the arterial system; and Bruce Young, whose early work on the anatomy of joints shook the science of Arthrology to its foundations, was all too soon diverted by ill health from a career full of brilliant promise for the progress of the Science of Anatomy.

## DISCUSSION ON THE ADMINISTRATION OF THE ANATOMY ACT.

### OPENING PAPER

BY

PROFESSOR ALEXANDER MACPHAIL, M.B., C.M., F.R.F.P.S.

IN introducing a discussion on this subject, so vital to medical education, the President described how the first steps towards new legislation were taken at a joint meeting of the Anatomical Society with the Anatomy Section of the Association at the Annual Meeting in London in 1910, when the late Professor A. M. Paterson was President and he himself was Secretary. As the result of a discussion on the vexed question of the difficulty of securing an adequate supply of anatomical material in all parts of the country, a special meeting, to which all licensed teachers were summoned, was held in the Royal College of Surgeons, London, in the following December; an "Anatomical Supply Committee" was appointed, to gather full information anent the problem, and to recommend, if possible, some efficient remedy.

*The Anatomical Supply Committee.*

The late Professor Alexander Macalister was elected chairman of this committee, which was representative of teachers of anatomy and operative surgery in all parts of the (then) United Kingdom and in His Majesty's Services; it included Professors Arthur Thomson (Oxford), R. W. Reid (Aberdeen), Arthur Robinson (Edinburgh), the late A. M. Paterson (Liverpool), Johnson Symington (Belfast), A. F. Dixon (Dublin), F. G. Parsons (London), Mr. W. McAdam Eccles (London), Colonel E. M. Pilcher (R.A.M.C.), and himself as honorary secretary. The committee held many meetings, and conducted widespread investigations into the conditions of anatomical supply both in this and in other countries, and early in 1912 issued a report summarizing these, and recommending that His Majesty's Government be approached by a deputation to explain the difficulties commonly experienced in the working of the Anatomy Acts of 1832 and 1871 and to suggest suitable amendments or the introduction of a new Act. A second meeting of licensed teachers, to which this report was submitted, empowered the committee to organize as influential a deputation as possible, on the lines suggested.

*1912. Deputation at the House of Commons.*

In December, 1912, the Right Hon. Reginald McKenna, M.P., Home Secretary, received at the House of Commons this deputation, which he described as "literally and truly unparalleled and unprecedented." It included representatives from every university and medical licensing corporation in the United Kingdom; in most cases their Vice-chancellors attended to represent the former, and their Presidents the latter; it was introduced by the Right Hon. Dr. Christopher Addison, then recently elected a Member of Parliament. The pressing needs of the anatomy schools, and the disastrous effects that would befall medical education and practice unless efficient teaching in anatomy were maintained, were explained in speeches by the late Principal Sir William Turner, the late Professor Alexander Macalister, Sir Rickman Godlee, the late Sir Alfred Pearce Gould, Sir Thomas Barlow, Colonel Skinner, Principal Sir Donald MacAlister, and Principal Sir George Adam Smith. In reply, the Home Secretary declared himself deeply impressed by these speeches, and he carefully discussed the points raised; he favoured a further attempt to improve the administration of the existing Act rather than run the risks of introducing a new one, but he undertook to face the latter course if nothing resulted from the efforts that would be made to improve the conditions.

*1913. Conference at the Home Office.*

At Mr. McKenna's request a subcommittee of the licensed teachers met representatives of several Government departments in conference at the Home Office early in 1913. While the Scottish Office and the Scottish teachers were represented at this conference the Irish Office, though expressing the desire to be informed of its views, did not send a representative. At this conference several suggestions for improving supply were discussed; there was general agreement that the institution of a "notification fee" was desirable, to be paid to the executive officers who were responsible for the careful and exhaustive inquiries which led to the certainty of an unclaimed body being available, but any practical outcome was delayed owing to the principal official concerned being engrossed by new legislation in another sphere, and no improvement had taken place when the following year witnessed the outbreak of war.

Though sadly disappointed by this delay, the committee could not then press this matter on a Government suddenly burdened by such tremendous problems and responsibilities. Moreover, the mobilization or voluntary enlistment of many students in the early days of the war and, later, the practical conscription, under the Derby scheme, of all medical students who were fit for military service, lessened the difficulties of the schools. It became necessary, indeed, to close some of the sources of supply and also, owing to the surplus which had accumulated, to introduce an Order extending by twelve months the period during which a subject might be retained before burial.

*1918. The Post-war Crisis.*

The end of the war, however, led to a crisis in the difficulty of supply. The return of large numbers of students who had happily been spared to resume their studies, and, concurrently, a large increase in the number of new students, led to the crowding of dissecting rooms by men and women for many of whom no subjects could be provided for practical instruction in anatomy, while the teaching of operative surgery on the cadaver had to be entirely suspended. Late in the year 1918, thus faced with difficulties even greater than when they commenced their labours, the committee again approached the Home Office and were referred from there to Sir George Newman, one of the medical representatives of the Government at the Conference in 1913, who favoured steps being taken to transfer the administration of the Act to the Board of Education on the ground that this Ministry had become closely concerned in the problems of medical teaching through the allocation of grants, which would largely fail of their purpose if an adequate supply of material for anatomical teaching and research were not maintained in the universities and medical schools.

Meantime, while steps in this direction were in progress, suggestions had reached the committee from various quarters that as this problem closely affected, through the provision of properly trained medical men and women, the health and well-being of the country, it should be undertaken by the new Ministry of Health then in process of establishment, and early in 1919 the committee decided to recommend that course. A memorandum was prepared by the committee, embodying all their previous efforts to find a remedy for the deficiency in anatomical supplies, and this was forwarded to the Prime Minister and other members of the Government with the twofold recommendation that the administration of the Anatomy Act should be among the powers and duties to be transferred to the Ministry of Health and to the Scottish Board of Health, and that the Act should be amended in such a way that it would adequately effect the purpose for which it was originally framed. In the first of these recommendations the committee was assured of the cordial support of Dr. Addison, the first Minister of Health, who was personally acquainted with the difficulties of the situation through his former experience as a professor of anatomy.

*1919. Transference of the Administration of the Anatomy Act from the Home Office.*

In September, 1919, an Order in Council was prepared, advising the transference recommended by the committee. Owing to the somewhat cumbrous procedure required by both Houses of Parliament the Order did not take effect until May 17th, 1920, on which date it received the approval of the King in Council, but the subcommittee of licensed teachers, who had lately lamented the loss of their chairman, Professor Alexander Macalister, and had appointed Professor Arthur

Thomson in his stead, had meanwhile been invited to meet the Minister of Health in conference, in November, 1919, to discuss immediate steps that might be taken to remove the difficulties of the medical schools of England and Wales. The problem as it affected the medical schools of Scotland was the subject of discussion, about the same time, between the Scottish Office and the Scottish Board of Health, when it was decided, he understood, that in Scotland the administration of the Act should remain, as heretofore, in the hands of the Scottish Office.

*Administration of the Act by the Ministry of Health.*

The Minister of Health explained to this conference that the transference of the administration of the Act by Order in Council gave the Minister of Health no powers to alter in any way the regulations of its various clauses, and he proposed, in the first instance, to inaugurate a systematic approach to the legal custodians of unclaimed bodies; for he was assured, by inquiries he had made, that if all such as were available were placed at the service of medical education the requirements of the schools could be adequately met.

It was therefore decided to make an effort to realize the the purpose of the existing Act by inviting himself (the President) to accept office as a medical officer of the Ministry, in the hope that his close acquaintance with all the preceding negotiations would enable him effectively to explain to the authorities concerned the difficulties of the administration of the Act, and, by his long experience in the practice of anatomy, to impress on them their opportunity of advancing the cause of medical education. That office the President accepted in July, 1920, as soon as he could be released from his duties at St. Bartholomew's Hospital Medical School; and after consultation with Dr. Addison and his chief medical officer, Sir George Newman, he proceeded at once to organize a new campaign on lines approved by them.

> Thus, for the first time in the history of the administration of the Anatomy Act in England and Wales, a Government department undertook the responsibility not merely of supervising the anatomy schools, but also of helping them to secure an adequate supply of the material which they require.

The gravity of the situation at that time might be judged by the following figures: the University of Cambridge had 3 adult subjects available for the tuition of a class of 280 students; Liverpool had 2 for 253; Cardiff 2 for 220; Bristol 2 for 118; Manchester 6 for 250. While the London medical schools suffered from an equally marked deficiency, the other provincial universities were more adequately supplied; the new campaign was therefore directed in the first instance to improving the conditions in London and the foregoing provincial areas—conditions which had led inevitably to a return to primitive methods of instruction; oral demonstrations had to be substituted for dissections, which had to be eked out sometimes by using the bodies of stillborn children, or even of monkeys as in the days of Galen. In this course of action much help was derived from the previous labours of the London Anatomical Committee (chairman, Sir Arthur Keith; secretary, Professor F. G. Parsons), of the Provincial Committee (chairman, Professor Arthur Thomson, Oxford; secretary, Professor J. S. B. Stopford, Manchester), and of Mr. W. O'Sullivan, who, on the staff of the Home Office, had for many years carried on the work of the Anatomy Office prior to his transference, with that Office, to the Ministry of Health.

The policy adopted by the Ministry closely followed that pursued by the licensed teachers over the long period since the introduction of the Anatomy Act, by appealing to the legal custodians of unclaimed bodies for the use of these for anatomical examination.

> This policy was based on careful consideration of the view that the systematic use of such bodies for medical education was the method least likely to give offence to the sentiments of living persons.

[The President then explained in full detail the methods adopted in the administration of the Act.]

*1920-1922. The Effect.*

The results recorded amply justified the policy of the Ministry, and the conviction of the first Minister of Health that all the requirements of the medical schools could be met, for the present, without recourse to new legislation. The number of institutions, asylums, etc., which had thus been added to the former sources of supply amounted to a total of 127, and from these many subjects had been distributed to the schools. Translating the records into terms of the usual allocation of "parts," in the classes of anatomy and operative surgery it might be said that more than 12,000 students had thus enjoyed for one term at least the opportunity they would otherwise have lost of thorough tuition and experience in the fundamental science of their profession. In terms of the benefit to be derived in the long run by the people of this country, the improvement was incalculable.

*The Future.*

With regard to the future, it was well to realize that there were difficulties ahead. That anatomical subjects would be required by the medical schools as long as disease prevailed was as fundamental a fact as that knowledge of the alphabet was the first step in any scheme of education, elementary or advanced. There could be no doubt, however, that all the beneficent measures now directed towards improving the conditions of life were resulting in a gradual diminution in the number of *unclaimed* dead. This question brought him to a very important aspect of the administration of the Act.

Clause VII of the Anatomy Act expressly provides for the carrying out of the wishes of persons who "direct" that their bodies shall be used for anatomical examination after death. In past years many such, rich and poor alike, had advanced the cause of medical education by so doing. He had commonly heard the statement, even from those most bitterly opposed to the idea of permitting the dissection of other persons, that they felt no objection whatever to their own bodies being used in that way. In this sentiment lay the crux of the whole question of the voluntary bequest of bodies for the benefit of medical science, and due regard was paid to it in the safeguards qualifying Clause VII, which gave any surviving relative the right to annul the bequest by requiring the body to be interred without such examination. Anomalous as this might appear at first, when contrasted with the binding nature of any bequest of personal property, it was surely realized, on second thoughts, as a right and proper protection of such sentiments of living people, regarding the disposal of the dead, as might be a much deeper matter to them than interest in merely material affairs. The suggestion had frequently been made that an adequate supply of subjects would be assured were such bequests made legally binding on executors through an amendment of the Act. Not long since Lord Rowallan, in a letter to the *Times*, expressed his surprise on learning that he could not legally bequeath his body for the relief of human suffering by the advancement of medical knowledge, and his opinion "that no obstacle should be put in the way of those who feel that being serviceable is everywhere honourable to a man while he lives and to his body when he has left it."

No suggestion yet made, however, could overcome the present state of public sentiment and the difficulty that, while a deceased person had passed beyond any concern in the matter, there might be living persons whose feelings it was not right to disregard by insisting on the manner of the disposal of his or her remains. At the root of these feelings might lie, no doubt, the aftermath of the sinister days when the horrors of "body-snatching" and the exaggerated horrors of the dissecting room which gathered round them were a present fear to every household in the land. There still persisted, too, that view of the sanctity of the corpse which made the idea of its dissection appear irreverent: the life of the great Vesalius, the father of human anatomy, was sacrificed to that feeling close on four hundred years ago, and it had not entirely disappeared even in our own day.

While it was probably true that any member of our own profession—though most familiar of all, therefore, with the meaning and purpose of anatomy—could think with equanimity of his own body being dissected, should it be required for the advancement of medical science, it was probably equally true that in the present stage of our outlook on these matters he could not think exactly in the same way with regard to the bodies of his nearest relatives. How much more likely must we expect this to be true in the case of laymen in general, until such time as the sting of death and the victory of the grave should have lost their potent influence on the human mind.

But surely signs were not wanting of a steady advance towards a day when the *material* aspect of death would be seen in proper focus, and in these there appeared to him to lie the assurance that the teaching of anatomy, if its requirements were adequately presented, would never lack the public support it needed. The ever-increasing number of persons directing that their bodies should be cremated surely denoted

the gradual progress of enlightened views as to the *facts* of death; and it should not be difficult to persuade such persons, and their relatives, of the advantages to medical science and their fellow men which would result from a prior anatomical examination. The grim horrors of war, too, had done much in our time to hasten the "dying of death"; it mattered little, surely, compared with the revered memories of the fallen, whether his flesh were torn by wounds or dissipated by a shell, whether his mortal remains lay in the Abbey or in a distant field in Flanders. Might not those signs of an altering outlook on the fact of death be interpreted as the gradual growth of a common-sense view which would gradually remove the mass of distressful mystery which has for so long surrounded it? And might not one result be that, when the need arose, all the bodies required for medical study would be freely supplied by voluntary dedication? He felt convinced that in the vanguard of such dedication would be found the men and women of the medical profession.

### DISCUSSION.

Professor T. H. BRYCE (Glasgow) said he had been most interested to hear the account of what Professor Macphail had accomplished for the medical schools south of the Tweed. It was comforting to learn of the success that had attended his work for the Ministry of Health. In Glasgow there was an ideal arrangement, established since a long time, by which the matter was supervised, under the Inspector of Anatomy, by a committee consisting of the senior magistrates with representatives of the Poor Law authorities and of the Public Health Department in consultation with the teachers. In spite of this, and of a special clause in the Public Health Act, serious shortage of subjects was experienced notwithstanding the goodwill of the authorities. Many causes probably combined to this effect. The amelioration of the social conditions of the people tended to reduce the supply, and the only thing to do was to add to the number of the sources. This was being actively carried out by the Inspector of Anatomy, with improving results. The preponderance in hospitals and asylums of *post-mortem* examinations on unclaimed bodies—except in exceptional circumstances—should be forbidden. In times of serious shortage when it was impossible to provide adequately both for anatomical and for operative surgery classes he thought it would be universally agreed that the students of anatomy should have the first claim, as nothing could make up for the loss of the experience gained in the practical anatomy class. This was not so much because the mere facts could not be acquired otherwise, but because in no other way than by personal dissection could the student acquire a permanent and working knowledge of the structure of the body.

Professor J. T. WILSON (Cambridge) said that, speaking as a teacher of anatomy in England, he desired to express his grateful appreciation of the efforts made by the President of the Section in his capacity as a Medical Officer of the Ministry of Health. As a result of his work the provision of subjects for the teaching of anatomy in the Cambridge school had been placed on a satisfactory basis. He was grateful to the Ministry for placing an expert in control of these matters. He strongly supported the President's view of the undesirability of claiming for anatomical purposes the bodies of the inmates of Poor Law institutions on the ground of pauperism. It was, he held, of the utmost importance for the future of the practice of anatomy to remove from it any stigma of pauperism. In older days the stigma of criminality was attached to the practice of dissection, when practically the only subjects available were the bodies of executed criminals. This has long ceased to be the case, but the stigma of pauperism still remained to a great extent, inasmuch as it was, and must always be, the case that the majority of unclaimed bodies were those of the impecunious. Yet we must hope that social evolution would progressively diminish the actual amount of pauperism, whilst the requirement of bodies for dissection would always remain a stringent necessity for scientific education. In his view the hope for an adequate provision for the future must lie in the removal of all stigmata and in the growing recognition by an enlightened public opinion of the truth that it was not only possible, but a worthy aim, to be of service to the community after death by authorizing during life the disposal of one's body in furtherance of the interests of medical science.

Professor J. C. BRASH (Birmingham) desired to add his testimony to the remarks of the Senior Vice-President as to the valuable work which had been accomplished by the President of the Section. In Birmingham the supply of subjects had been slowly but steadily going down until Professor Macphail had visited that area, and now it is steadily increasing, owing, of course, to his having made available a supply of unclaimed bodies which would otherwise have been lost. He felt very grateful for the President's careful exposition of the difficult question of compulsory as compared with voluntary action in this matter.

On the invitation of the President, Professor THOMAS WALMSLEY (Belfast), who had visited the Section to listen to the discussion, spoke of the conditions of anatomical supply in the north of Ireland, where a new inspector had been appointed now that they were separated from the south. In the consequent reorganization, while things were still largely in a state of flux, they had proceeded along lines modelled for the most part on those followed by the President in England and Wales.

The PRESIDENT, having replied to questions raised by the other speakers, then closed the discussion, and called upon Professor J. T. Wilson, F.R.S., the Senior Vice-President, to occupy the chair during the hearing of the subsequent papers. He had already expressed to their distinguished Senior Vice-President his own sense of the anomaly of presiding over any gathering of which he (Professor Wilson) was a member, and he knew that the Section would welcome to the chair a man of his wide experience and scientific attainments.

## THE RELATION OF THE URETERS TO THE VAGINA*:

### WITH A NOTE ON THE ASYMMETRICAL POSITION OF THE UTERUS.

BY JAMES C. BRASH, M.C., M.A., B.Sc., M.B., CH.B.,
Professor of Anatomy, University of Birmingham.

THE relation of the ureters to the vagina is recognized to be one of the most important points in the topographical anatomy of the female pelvis. The accounts of this relation in most textbooks, however, are found to be in very general terms. Most agree in stating that, after passing obliquely downwards, forwards, and inwards, usually in close relation to the lateral fornix, a portion of the ureter lies in front of the vagina. Variations in the length of this prevaginal portion of the ureter are recorded, and there seems to be some opinion that the relation of the ureter to the vagina is more intimate on the left side. But a clear statement of the distinction between its two parts, between the vagina and the bladder and in the wall of the bladder itself, is lacking, and it does not appear that the very frequent distinct asymmetry of the relation on the two sides has been specifically noticed.

The general assumption appears to be that, as the cervix and the trigone of the bladder are relatively fixed, there is no asymmetry in this region, and that the only factor to be considered with reference to this relation is the state of the bladder. Distension of the bladder undoubtedly produces slight differences in the position of the two ureters relatively to each other, and, as they separate, the amount of each in relation to the anterior wall of the vagina necessarily diminishes. But we can leave this factor practically out of account; the amount of spreading of the trigone is very little compared with the rest of the wall of the bladder. Given a bladder and vagina symmetrically related to each other, no amount of distension of the bladder will carry the ureters beyond the anterior wall of the vagina. One of the ureters, however, is frequently found not to reach the side of the vagina, and the cause of this is a permanent displacement of the uterus and upper part of the vagina relative to the middle line of the trigone. It is generally conceded that the uterus lies asymmetrically in the pelvis, in the majority of cases with the fundus inclined to the right, the cervix correspondingly to the left, and the body rotated so that the right Fallopian tube is nearer the anterior abdominal wall than the left.

*My attention was originally directed to this question in 1914 by a request from Professor J. B. Hellier, Leeds University, to make some special dissections to illustrate his article on "Fistulae in the female genital tract" in Eden and Lockyer's *New System of Gynaecology*. The results then obtained were referred to by him in that article. Having recently made some further preparations, the opportunity has been taken to bring together all the results in view of the surgical importance of the point demonstrated. I am indebted to Professor Hellier for permission to include the former findings.

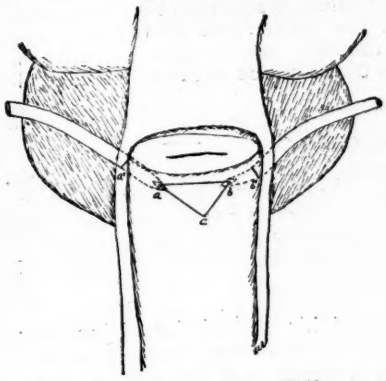


FIG. 1.—Multipara, aged 59. Half natural size. $a$–$b$ = 19 mm.; $a$–$c$ = 14 mm.; $b$–$c$ = 13 mm.; $a$–$a'$ = 12 mm.; $b$–$b'$ = 8 mm.

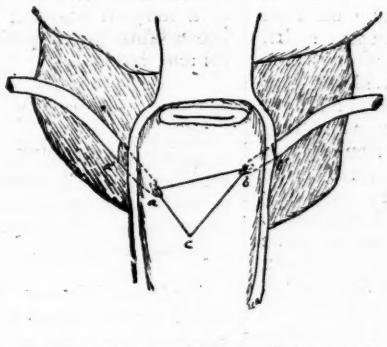


FIG. 2.—? Para, aged 39. Half natural size. $a$–$b$ = 27 mm.; $a$–$c$ = 18 mm.; $b$–$c$ = 24 mm.; $a$–$a'$ = 12 mm.; $b$–$b'$ = 10 mm.

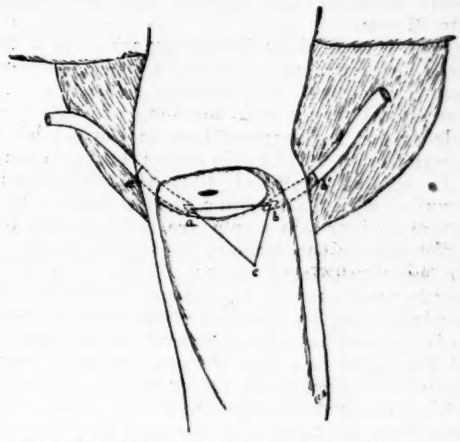


FIG. 3.—Multipara, aged 37. Half natural size. $a$–$b$ = 20.5 mm.; $a$–$c$ = 23.5 mm.; $b$–$c$ = 16.5 mm.; $a$–$a'$ = 15 mm.; $b$–$b'$ = 14 mm.

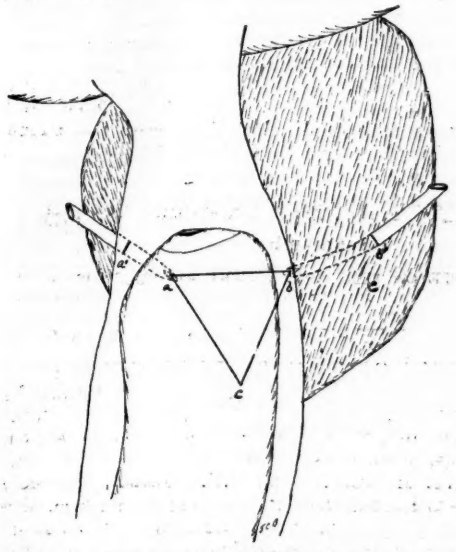


FIG. 4.—? Para, aged 57. Half natural size. $a$–$b$ = 31 mm.; $a$–$c$ = 35 mm.; $b$–$c$ = 33 mm.; $a$–$a'$ = 14 mm.; $b$–$b'$ = 23 mm.

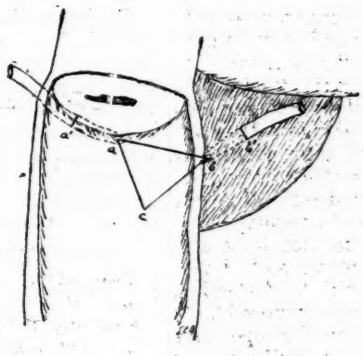


FIG. 5.—? Para, aged 43. Half natural size. $a$–$b$ = 21 mm.; $a$–$c$ = 20 mm.; $b$–$c$ = 20 mm.; $a$–$a'$ = 12 mm.; $b$–$b'$ = 1 mm.

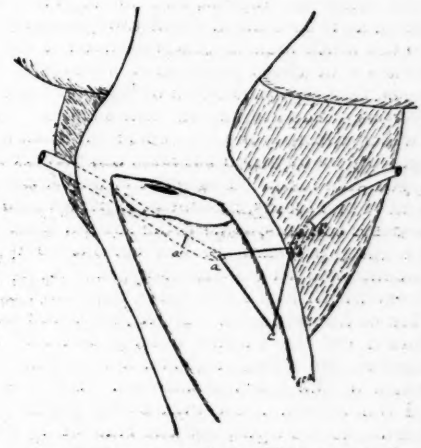


FIG. 6.—5-para, aged 52. Half natural size. $a$–$b$ = 19 mm.; $a$–$c$ = 24 mm.; $b$–$c$ = 22 mm.; $a$–$a'$ = 8 mm.; $b$–$b'$ = 7 mm.

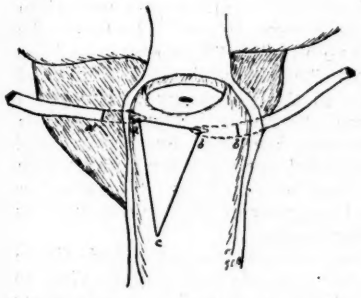


FIG. 7.—Aged 14. Half natural size. $a$–$b$ = 15 mm.; $a$–$c$ = 30 mm.; $b$–$c$ = 30 mm.; $a$–$a'$ = 9 mm.; $b$–$b'$ = 10 mm.

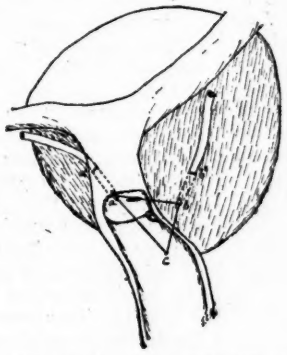


FIG. 8.—Aged 11. Half natural size. $a$–$b$ = 17 mm.; $a$–$c$ = 20 mm.; $b$–$c$ = 13 5 mm.; $a$–$a'$ = 7 mm.; $b$–$b'$ = 10 mm.

FIG. 9.—Foetus, full-time. The arrows show the direction of pressure as described in the text. Half natural size. $a$–$b$ = 3 mm.; $a$–$c$ = 15 mm.; $b$–$c$ = 15 mm.

FIG. 10.—Foetus, seventh month. Half natural size. $a$–$b$ = 5 mm.; $a$–$c$ = 10 mm.; $b$–$c$ = 10.5 mm.

No elaborate description is required. A study of the accompanying illustrations will demonstrate the point it is desired to establish. The method of investigation has been to remove the pelvic contents entire, fix in formalin, and open the vagina from behind and the bladder from the front. The position of the trigone in relation to the vagina was then marked by passing pins from the bladder to the vagina at the three points—one through the floor of the bladder immediately above the internal urethral orifice, and one through the middle of each of the oblique ureteral openings. The position of the trigone is thus mapped out and the lengths of the portions of the ureters in relation to the vagina seen at a glance. A dissection of the ureters to the points where they entered the bladder wall completed the preparations. The series of outlines given are taken from these preparations, and represent the vagina opened from behind, with the position of the trigone marked in relation to its anterior wall. In each case $a$ is the left ureteral opening, $b$ is the right ureteral opening, $c$ is the urethral orifice, and $a'$ $b'$ the points at which the ureters enter the bladder wall. The drawings are to scale, and the measurements in each specimen are given with the figure.

When there is an approximately symmetrical arrangement (Figs. 1 and 2) there are, as a rule, on both sides two distinct parts of the prevaginal portion of the ureter, a part lying in the connective tissue between the vagina and the bladder and a part in the wall of the bladder. Testut states that these parts vary from 15 to 18 mm. and from 10 to 15 mm. respectively. So far as the present dissections go, the actual length of the part of the ureter in the bladder wall varies from 7 to 23 mm., and of this the whole or none may be in front of the vagina. The part in the connective

tissue between the bladder and the vagina varied from 0 to 36 mm.

Figs. 3 to 6 show increasing amounts of relative displacement of the trigone to the right, which is the condition usually found. In Fig. 6 the intimate relation of the left ureter to the lateral fornix and the long prevaginal portion on that side are in striking contrast to the condition on the right, where the ureter is not in close relation to the vagina at all.

It should be noted that the differences in shape and position, which are such a marked feature of the age changes in the bladder as a whole, are accompanied by corresponding differences in the shape of the trigone and its position relative to the uterus and vagina. Figs. 7 to 10 illustrate these points, and it will be noticed that the trigone not only changes from an isosceles shape characteristic of the foetus to the approximately equilateral shape which is characteristic of the adult, but that its position as a whole moves down from the region of the cervix to the upper part of the vagina. This relative descent proceeds to a variable extent, as may be seen from the figures, and as may be indicated by the statement that the vertical distance from the os uteri externum to the interureteral line varies in the adult specimens examined from 6 to 23 mm., with an average of 12 mm.

There is no doubt that the asymmetry is established in the later months of foetal life while the bladder and uterus are still abdominal organs, and that it is due to pressure from the colon as it becomes distended by meconium from the seventh to the ninth month. I am inclined to think, judging from the relation of these parts in a number of foetuses of different ages, that it is a question of balance between pressure on the fundus of the uterus and on the bladder by the loop of colon (which becomes the iliac colon) situated in the left iliac fossa and the loop (which becomes the pelvic colon) situated in the right iliac fossa. The latter is well known to vary in length, and in the foetus, moreover, it passes into the true pelvis to become continuous with the rectum from the right side. By exerting pressure on the cervix from the right it thus accentuates the asymmetry of the uterus. The specimen from which Fig. 9 was taken furnishes an excellent illustration of these factors. There are three well-marked pressure facets on the uterus, a large left and small right on the fundus, and a large right on the cervix, corresponding to the parts of the colon mentioned. There is marked asymmetry of the uterus, the cervix being pushed to the left and the fundus to the right, and the bladder is also displaced to the right.

The subsequent greater relative descent of the bladder into the true pelvis will naturally accentuate that asymmetrical relation of the trigone to the uterus and vagina which is already present, and when the bladder reassumes a median position as it expands into the anterior hollow of the true pelvis it is easy to see that it will tend to rotate the uterus on its long axis. The same process therefore accounts not only for the "normally" asymmetrical position of the trigone of the bladder and of the ends of the ureters in relation to the anterior vaginal wall, but also explains the "normal" position of the uterus with reference to the middle line of the body.

Lastly, it may be noted that variations in the lie of the lower part of the colon, distended with meconium, in the foetus will account for the observed variations in the final position of the uterus and of the trigone of the bladder and the ureters in relation to the vagina.

*Summary.*

1. The relation of the last portion of the ureter to the vagina is variable. There is usually a portion of the ureter in front of the vagina, lying for a short distance in the connective tissue between vagina and bladder and then in the wall of the bladder itself.

2. With the vagina and bladder symmetrically related to each other this portion of the ureter is equal on the two sides; but deviation from the symmetrical position is the rule. The result is an increase of this portion of the ureter on one side and a corresponding decrease on the other. There is frequently no ureter in front of the vagina on one side and therefore a much longer portion than usual on the other side.

3. In the majority of specimens examined it is the left ureter that has the greater relation to the vagina, and it is occasionally found crossing the middle line of the vagina.

4. As a rule, therefore, the left ureter is in a position of greater danger than the right, both in operative work and from the point of view of the formation of a uretero-vaginal fistula as a result of pressure. It must not be forgotten, however, that occasionally the position may be reversed.

5. The "normal" asymmetrical position of the uterus in the pelvis is explained by the fact that an asymmetrical position of bladder and uterus is early established while these organs are still in their abdominal situation, by the subsequent greater relative descent of the bladder and its reassumption of a median position in the true pelvis which accentuates the asymmetrical position of the uterus and rotates it around its long axis.

---

## DISCUSSION.

Major S. ENGLISH, speaking from the point of view of the surgeon, said that he wished to congratulate Professor Brash on his paper. Professor Brash had cleared up what had been a matter of considerable difficulty in the performance of operations. The speaker would now be far less afraid of injuring the ureter.

Professor WILSON expressed his appreciation of Professor Brash's investigation. It was important to ascertain the range of variation of various structures in the body and much work remained to be done on these lines. He questioned whether pressure was the cause of the asymmetry of the uterus as well as of the downward movement of the trigone. Asymmetry of the trigone was present very early. The genital ducts were also uncertain in position. The change in form and proportion of the trigone might be due to interstitial growth.

Professor BRASH, in reply, said that there were two lines of variation—lateral and vertical. Both the bladder and uterus descended into the pelvis, but the bladder might descend relatively lower. Lateral pressure caused the uterus, cervix, and vagina to assume an asymmetrical position. Then when the bladder descended the asymmetry was accentuated. The change in form in the trigone was due to interstitial growth. He was glad to know that his work had a practical application to surgery.

---

# THE ANATOMY OF THE BONE MARROW:

## WITH SPECIAL REFERENCE TO THE DISTRIBUTION OF THE RED MARROW.

BY

A. PINEY, M.R.C.P.LOND., M.R.C.S.ENG.,

Lecturer in Pathological Histology, University of Birmingham.

THE subject of this communication is not original in conception, but is designed to supplement and, in some cases, modify the accounts previously published. The standard textbooks of anatomy make only indefinite statements on the subject of the anatomy of the marrow; this is probably due to the lack of opportunity in the dissecting room for the observation of the changes associated with advancing age. The textbooks of haematology, in which one might well expect to find the required information, are filled with cytological details and theoretical considerations as to the genealogy of the blood cells, but the essential facts of the ordinary macroscopic anatomy of the bone marrow are not described; brief statements of more than doubtful accuracy are found which appear to have been copied from book to book. The absence of information on the normal anatomy of the bone marrow is the justification for the present paper.

The red bone marrow is the principal haematopoietic tissue in the adult and is not only a simple material serving to render the bones solid without unduly increasing their weight. It is the factory in which all the formed elements of the blood are produced with, perhaps, the exception of the lymphocytes. Disorders of the red bone marrow are associated with irregularities in the production of anti-substances, and it would appear that the red marrow is the principal arsenal of the defensive forces of the body.

Since the demonstration of the haematopoietic function of the adult bone marrow by Bizzozero[1] and Neumann[2] there have been a number of descriptions of the changes in the distribution of the red marrow throughout life. The first paper of value dealing with this subject was that of Neumann,[3] in which he pointed out that the older idea that the epiphyses contained red marrow while the diaphyses contained fatty tissue was incorrect. He found that the small bones of the hands and feet contained fatty marrow in the adult, as did also the tibia, fibula, radius, and ulna, whereas the humerus and femur contained a small area of red marrow at the upper epiphysis. His material was insufficient to enable him to describe the distribution in childhood. His conclusion was

that the fatty metamorphosis commenced in the most distal parts of the limb bones and spread towards the trunk; this appeared to him to be in agreement with the observation of Ranvier[4] that the caudal vertebrae of tailed animals contained fat.

Hedinger[5] published results similar to these based on examination of over five hundred cases, but, like Neumann, he only considered the distribution in the adult, and his description dealt only with the marrow of the femur.

It would appear as if this older work had been forgotten or ignored, as many quite recent authors make very different statements without giving any reasons for their deviation from these classical accounts. W. K. Hunter[6] stated that in the adult the red marrow was limited to the ends of the long bones, the ribs, and the skull, thus leaving the reader to infer that both ends of each long bone contained red marrow. Gruner[7] made a similar statement regarding the long bones.

The haematopoietic function of the red marrow is, apparently, not yet realized by all authors. Ord[8] asked, "Why should marrow be only for the nourishment of a bone?" He would thus appear to believe that the modern conception of the functions of the marrow has not advanced in any particular since the time of Galen, who regarded the marrow as the nutritive tissue of the bones. Ord, however, made other statements of more importance to the present subject; thus in the same letter from which the above question is quoted he states that "most of the marrow in the human body is in the femur, and next to the femur the humerus, and following them the long bones in this order: tibia, fibula, radius, ulna. One femur contains probably a sixth of the marrow in the whole body." He does not state at what age the femur contains this amount of marrow, nor does he state how the relative amounts are estimated. It will be obvious from these few references to the literature that the red bone marrow is the only organ in the human body of which the normal size at different ages is still unknown. In this paper I will try to present the facts as determined by ordinary observation in the *post-mortem* room, but I can make no contribution to our knowledge of its weight, either relative or absolute.

The present investigation deals with material from 91 subjects between the ages of 3 days and 83 years.

### *Technique.*

The selection of material for the study of the normal distribution of the red bone marrow requires great care; only material from cases of sudden death in previously healthy persons can be employed. When one recalls the haematopoietic function of this tissue, it is obvious that any condition requiring an increased number of cells, either red or white, in the circulation will lead to changes in the red marrow which may be sufficiently intense to be obvious on macroscopic examination.

The best method of examining the long bones is by making a longitudinal cut with a narrow-bladed hack saw, which obviates the blurring of the appearances which is inevitable if an ordinary flat saw is used. The corresponding bone of the opposite side should be examined by a series of transverse sections at various levels. The examination by transverse section is necessary to demonstrate the fact that the red marrow is more extensive at the periphery of the medullary cavity than in the axis.

It is well to realize that red tissue in the medullary cavity is not necessarily true cellular red marrow. Microscopic examination is essential for the determination of the limits of the true cellular marrow congestion of the blood vessels in an area of fat closely simulates the appearance of true marrow. Microscopic examination also enables an estimate of the relative cellularity of the tissue to be made, as minute amounts of fat are not macroscopically appreciable.

The arrangement of the bony trabeculae can be investigated in specimens which have been washed under the tap until the marrow tissue is completely removed. This process takes two or three days. The ribs can be examined by longitudinal section, and some additional information can be obtained by expressing the marrow with strong forceps. The vertebrae can be inspected by removing the anterior part of their bodies.

The technique as described above is applicable to examinations in the *post-mortem* room, but obviously a much more extensive investigation is possible in the dissecting room where aesthetic considerations need play no part in the selection of a method.

### *The Long Bones.*

It is impossible to describe each case in this series in detail, and only a summary of the findings will be given. If the material is selected with the precautions suggested above it will be found that the amount of individual variation is very slight.

At birth and during the first three or four years of life the cut section of the marrow is pink in colour, but the expressed tissue is a rich red colour. The pinkness of the section is due to the presence of closely set bony trabeculae which divide up the tissue into small masses. As the age of 7 is approached the marrow is a less bright pink and the cut surface is more greasy. The expressed tissue is now also a less definite red, and glistening droplets of fat are distinctly visible. The bony trabeculae in the shaft are less well developed and are farther apart.

The changes in the diaphyses and in the epiphyses are best considered separately from this age onwards.

### *Diaphyses.*

Up to the age of 7 there is increasing greyness of the marrow although it is still pink in colour, but no macroscopic areas of fat are present. Between the ages of 12 and 14 a patch of fat becomes visible about the middle of the shaft, and within the next twelvemonth there are a number of smaller patches in the part of the shaft below this first patch. The changes in the tibia and fibula are similar in character to those in the femur but occur more rapidly; similarly the changes in the radius and ulna advance more rapidly than those in the humerus.

The patch of fat in the middle of the shaft grows both distally and proximally in each bone, but the growth in the former direction is more rapid in all the bones. By the time that the fatty metamorphosis has reached both ends of the tibia and fibula it has also reached the lower end of the femur, but not its upper end; there is a similar distribution in the upper extremity. Thus at this stage the distal bones contain only fatty tissue in their diaphyses, while the proximal bones have still a patch of red marrow at the upper end of the shaft. This is the adult condition of the shafts of the long bones.

Throughout these changes there is progressive diminution in the number of bony trabeculae and also decrease in their rigidity. Incomplete bony trabeculae are always present in the fatty tissue, but are almost completely absent from the patch of red marrow at the upper ends. This absence of trabeculae appears to be associated with the functional activity of the marrow at these places.

The importance of examination of transverse sections of the shaft consists in the fact that the red marrow extends farther down at the periphery of the medullary cavity than it does in the axis. If a transverse section of the fatty patch, which appears at puberty, be examined in this way it will be seen that the periphery is red.

### *Epiphyses.*

The changes in the epiphyses are of a similar nature to those in the diaphyses, but occur as a separate process of fatty metamorphosis, and are not associated with absorption of the bony trabeculae. At the age of 7 the lower epiphyses of the distal bones show macroscopically detectable fat, and by the time of puberty there is much fat in both epiphyses of the distal bones of both upper and lower extremities and an appreciable amount in the lower epiphyses of the proximal bones and a little in their upper epiphyses. The fatty change in the epiphyses is complete by the age of 19 or 20 in all the bones, although a few small patches of red marrow may be visible throughout life.

In extremely advanced age no red marrow may be detectable in the epiphyses, and even the diaphyseal patch may be almost completely metamorphosed. It is rare to find any difference between the limb bones of the two sides, but it would appear that the humerus of the adult contains a larger quantity of cellular marrow than does the femur.

It must be understood that the transition from red to fatty marrow is diffuse in all the bones and is not sharply demarcated. The apparently complete fatty change in all the bones is shown, by microscopic examination, to be less extensive than would appear macroscopically, as there are always islets of blood-forming cells left.

### *Tarsus and Carpus.*

The number of these bones which have been examined is too small to justify a definite account of the changes, but the

one observation which may be recorded is that the fatty metamorphosis is complete before the whole of the marrow of the diaphyses of the tibia, fibula, radius, and ulna is fatty.

*The Ribs.*

The ribs are the great storehouses of cellular marrow in the adult, but changes are detectable with advancing age; the marrow adjacent to the cartilages usually becomes fatty about the age of 25 for a distance of about an inch. The only indication of fat in the remainder of the bone is in the greyer colour and in the presence of glistening globules in the expressed tissue. On longitudinal section of the ribs a darker patch is usually visible at the angle. Incidentally it may be mentioned that it would appear that this is the place in which cellular marrow persists longest in conditions of pathological aplasia of the marrow.[9]

*Vertebrae.*

The marrow of the vertebrae is red throughout life, and is traversed by very firm, close, bony trabeculae. In only one case was fat seen in the vertebrae with the naked eye, and this was in a woman aged 83; in this case no fat was seen above the third lumbar vertebra, and there was distinctly more fat in the uppermost segment of the sacrum and the fifth lumbar vertebra than in the third lumbar; it will be recalled that this would be homologous with the condition observed by Ranvier in tailed animals.

*Sternum.*

The sternum contains a good deal of red marrow and the trabeculae are well developed. Fat is not usually detectable except as glistening droplets in the expressed tissue.

*Os Innominatum.*

This bone is very similar to the vertebrae, inasmuch as it has very firm bony trabeculae and fat is very rarely seen, the red marrow persisting throughout life.

*Ectopic Formation of Marrow.*

Bone marrow of typical cellular structure is occasionally noted in other parts of the body than the medullary cavities of the bones; in some cases this occurs in pathological conditions such as leukaemia where there is demand for undue numbers of blood cells, but it has been seen in the normal adult. Bone marrow has been noted in the pelvis of the kidney. This has been seen in a normal adult male, but is more frequent in leukaemia[10] and pseudoleukaemic anaemia.[11] The appearance of this tissue is not unlike that of blood clot, and its nature can only be determined with certainty by microscopic examination.

*Lymphatics.*

The lymphatic supply of the marrow has never been demonstrated, and since the publication of Roger and Josué,[12] who definitely denied its existence, no author has suggested the presence of such channels on experimental grounds, although there have been suggestions of their presence from the clinical side. In the present research the technique was similar to that employed by Dewey and Noyes,[13] who verified the existence of lymphatics in teeth. The material used for injection was Prussian blue ground up with ether and turpentine.

Injection direct into the marrow tissue through the injection cannula described by the above authors resulted in the filling of the blood channels. If the blood channels were first injected with a carmine-gelatin mass, it was not possible to cause the Prussian-blue suspension to pass along the marrow, even when great force was employed.

If the lymphatics of the periosteum are injected the injection material does not pass into the marrow tissue, but is stopped at the endosteum after passing through the compact bone. Even if force is employed it is not possible to send the injection material into the marrow tissue; the only result of the employment of force is to cause extravasation into the endosteum. The writer has pointed out elsewhere[14] that the earliest metastases of carcinoma in the marrow of the long bones are always situated at the upper end of the diaphyses of the proximal bones—that is, in the red marrow. Later metastases in the bones also occur in the red marrow which has spread along the medullary cavity, owing to the irritation of the metastases or the state of cachexia. At one time it was commonly believed that these bone metastases were transferred by retrograde permeation of the lymphatics of the tendons of attachment of the great muscles, but at present Handley is one of the few authorities who take up this position. Injection experiments performed by the above technique are in absolute opposition to this theory.

*Blood Vessels.*

Injection of the blood vessels of a freshly killed experimental animal presents no difficulty if the channels are first washed out with saline, and then a warm carmine-gelatin mass is used. Bones obtained from the *post-mortem* room require to be warmed to body temperature before they can be used, and, in addition, it is necessary to wash out the vessels with a fibrin solvent such as sodium sulphate solution.

The injection is best made from the main artery of the limb. The injection mass is found in the nutrient artery which branches frequently in the medullary cavity. It breaks up into a leash of vessels at the lower edge of the red marrow at the upper ends of the diaphyses of the limb bones. This sudden widening of the stream-bed may account for the localization of metastases in this position, as their intravascular situation has been demonstrated by the writer.[14] The small vascular channels of the red marrow are doubtless very variable, as their endothelium almost certainly functions as a haematopoietic tissue when necessary, and, when it does so, there must be a change in the distribution of the small channels.

In the infant where the whole marrow is cellular, and also in the rabbit, the tissue is penetrated by similar small vascular channels. The rabbit differs in some particulars of unessential character, such as the possession of a central artery partially surrounded by a venous sinus in the axis of the tissue.

An injection of the blood vessels of the marrow of the normal human adult femur shows well-defined vessels in the fatty tissue, but the cellular tissue is all a definite carmine red; this applies only to the macroscopic appearances. Microscopically the carmine-gelatin mass is seen to be confined to the closely packed blood channels of the red marrow, and is not extravasated into the surrounding tissue. In the fatty tissue the vessels can be dissected out as well-defined red cords.

*Application to the Routine Teaching of Anatomy in the Dissecting Room.*

These observations are of only limited applicability to the routine teaching of anatomy in the dissecting room because the subjects are almost invariably very old and have died of chronic wasting diseases. The amount of red marrow in the majority of subjects in the dissecting room is very small, but the ordinary methods of preserving bodies are quite satisfactory for its demonstration. The marrow of the ribs and vertebrae is well seen.

*The Size of the Marrow at Various Ages.*

This subject has been investigated by Wetzel[15] with a complicated technique of uncertain value. His results, which have not as yet been repeated by the writer, are as follows: at birth the marrow is about 11 times as large as the spleen, and by the age of 19 is 12.9 times as large as at birth. The relation of marrow and spleen is said to be unchanged during this time. This last statement is presumably incorrect, as the spleen is not 12.9 times as large at the age of 19 as it is at birth.

*Conclusion.*

In brief, the picture of the marrow changes throughout life, as observed macroscopically, is as follows: from infancy to advanced age there is progressive diminution in the relative amount of cellular marrow in the limb bones and progressive increase in the amount of fat.

Examination of a series of adult marrows would lead one to imagine that there had been centripetal spread of the fat, thus leading to the filling of the more distal parts of the long bones with fat. This was the conclusion arrived at by Neumann.[3] Examination of the limb bones of a subject between the ages of 16 and 18 might lead to the belief that the red marrow was mainly confined to the ends of the long bones. The adult condition of the distribution of the marrow is reached about the 25th year, but some of the bones reach their final distribution at an earlier age.

The arrangement of the blood vessels in the red marrow is the essential factor in haematopoiesis, the two main types of cells—namely, red and white—being produced in relation to different parts of the vascular system of the marrow. The changes in the marrow of other animals are not well known,

but Ackerknecht[16] has shown that the changes in the distribution of the red marrow in the horse are very similar to those described above as being normal in man.


REFERENCES.

[1] Bizzozero: Sulla funzione ematopoetica del midollo osso, *Gaz. ital. lombard.* 1868, and *R. Ist. Lomb. di sc. et lett. Rendie*, vol. ii, 1869 p. 342*n*.
[2] Neumann E.: Ueber die Bedeutung des Knochenmarkes für die Blutbildung, *Centralbl. f. d. med. Wissensch.*, Bd. 6, 1863, p. 689.
[3] Neumann, E.: Das Gesetz der Verbreitung des gelben und roten Knochenmarkes, *Centralbl. f. d. med. Wissensch.*, Jg. 30, 1882, p. 321.
[4] Ranvier: *Traité d'histologie*, 1875-78, p. 319.
[5] Hedinger: Die Verbreitung des roten Knochenmarkes im Oberschenkel des Menschen, *Berl. klin. Wochenschr.*, Bd. 50, 913, p. 2121.
[6] Hunter, W. K.: *Recent Advances in Haematology*, p. 33. London, 1911.
[7] Gruner, O. C.: *The Biology of the Blood Cells*, p. 45. Bristol, 1913.
[8] Ord, G. W.: On the Internal Secretion of Marrow (letter), *Lancet*, vol. i, 1918. p. 385.
[9] Carslaw, J., and Dunn, J. S: Case of Aplastic Anaemia, *Glasg. Med. Journ.*, vol lxxiii, 1910, p. 331.
[10] M'Kenzie, Browning, and Dunn: Marrow in the Pelvis of the Kidney, *Journ. of Path. and Bact.*, vol. xiv, p. 139.
[11] Tanaka, T.: Ueber Knochenmarksgewebsentwicklung im Nierenhilusbindgewebe bei Anaemia splenica (Anaemia pseudoleukaemica infantum), *Beitr. z. path. Anat.*, Bd. 3, 1912, p. 338.
[12] Roger, H., and Josué, O.: *La Moelle osseuse*, p. 5. Paris, 1899.
[13] Dewey and Noyes: *Dental Cosmos*, vol. xlix.
[14] Piney, A.: Metastases in Bone Marrow, *Journ. of Path. and Bact.*, vol. xxv, 1922, p. 140.
[15] Wetzel: Die Grösse des roten Markorganes, *Anat. Anz. Ergänz. Heft*, Bd. 53, 1920, p. 82.
[16] Ackerknecht, E.: Beiträge zur Kenntniss des Markes der Röhrenknochen beim Pferde, *Virch. Arch.*, vol. ccviii, 1912, p. 396.


## DISCUSSION.

Dr. BATTERSBY (Glasgow) asked Dr. Piney if he could say what determined the progress of the fatty change. Why did it begin at puberty?

Dr. GRAHAM (Glasgow) emphasized the importance of Dr. Piney's work. Medical students had as a rule no clear conception of the anatomy and functions of the bone marrow until they came to study pathology. He now cut up bones as a routine in the dissecting room. Many of these were, however, found to be abnormal, and it was difficult to learn the normal condition from them.

Professor WILSON said that Dr. Piney's extensive series of observations would be appreciated by anatomists. They usually had not the opportunity of examining the stages of development of bone marrow. He would like to know whether Dr. Piney had studied the microscopical changes. Probably the alterations in structure at different periods depended on vascular change. As regarded teaching, the material in the dissecting room was not good as a rule. He suggested that bones of animals should be used.

Dr. PINEY, in reply, could give no reason why the spread of the fat in bone marrow should take place mainly distally, but the same phenomenon was seen in the tails of animals. He did not think gravity had anything to do with it because the change began just below the middle of the bone. It had some relation to the nutrient artery. The changes which took place in the vessels at the same time were very complicated, but their cause was unknown. He had not dealt with the microscopical details owing to lack of time. The first appearance of perivascular fat was associated with thickening of the vessel wall. Probably it occurred as a result of decreased vascular supply.

# RADIOLOGY IN THE TEACHING OF ANATOMY.


BY

J. M. WOODBURN MORISON, M.B., C.M.GLAS.,

Honorary Radiologist to Manchester Royal Infirmary; Lecturer in Applied Anatomy, Manchester University.


FOR many years anatomists have used radiographs in the form of plates, prints, or lantern slides to illustrate their lectures and demonstrations. In Manchester we have gone a step farther, and Professor J. S. B. Stopford has equipped one of the rooms in the anatomy school for *x*-ray work. He has attached me to his teaching staff as radiologist, and I am proud to hold that post.

I shall now briefly outline what we did last winter, showing you some of the lantern slides and prints used in the demonstrations, and I hope to convince you that the radiologist may be of use in the teaching of anatomy under the firm but kindly guidance of its professors, and thus may repay in some small measure the debt he owes to the anatomist.

I would lay stress first of all on the fact that attendance at the *x*-ray demonstrations is not compulsory. Nevertheless, they are well attended by students, who probably regard them as a relaxation from their more strenuous studies. These demonstrations are so arranged that they are related to the general scheme of teaching; therefore the students come with some knowledge of the subject, forming a critical audience.

It may be that I sometimes create doubt in their minds: for instance, when screening a chest they see in the right anterior oblique position a clear, well-defined space lying between the heart and the vertebral column—the posterior mediastinal space. The difficulty of the student is to reconcile what he has seen on the fluorescent screen with what he sees in the dissecting room, but these little problems are interesting and teach him to think out things for himself and approach the anatomy of the living, which he cannot do from dissections of the cadaver alone.

The first demonstration naturally deals with the discovery of *x* rays by Röntgen in 1895, the invention of the focus tube by Sir Herbert Jackson of King's College, which made the application of *x* rays in medicine a practical problem, and a few words are added about the two great pioneers of radiology in England, Sir James Mackenzie Davidson and Mr. Thurstan Holland. In the early days technique had to be acquired by the experience of many failures; nowadays it is taken for granted—apparatus has been so improved and standardized that anyone of average intelligence can learn to take good radiographs in a few weeks' time. It is the interpretation of them which is difficult, and for which a knowledge of anatomy is so essential.

We proceed to show how *x* rays penetrate objects in direct proportion to their density, passing through air with practically no resistance, but more or less completely stopped by lead according to its thickness. The different densities of human tissues are considered and also the action of *x* rays on the fluorescent screen and photographic plates. The student is now in a position to understand that he is not studying a photograph in the ordinary sense of the term, but a series of superimposed shadows which require interpretation.

We then go on to the *x*-ray study of a long bone and explain how the series of superimposed shadows is produced. We note that the periosteum does not give any shadow, but how in periostitis the deposition of calcium salts soon takes place and a shadow is seen. The cortex is seen giving a dense shadow and the cancellous bone a less dense one. The medullary canal merging at the ends into the cancellous heads is explained and also the cartilage space. The importance of knowing the structure of bones and the blood supply of the bones is illustrated by radiographs showing how osteomyelitis and how a secondary carcinoma affect a bone, and the moral of the tale is plain: you cannot interpret a radiograph correctly without a knowledge of anatomy.

In subsequent demonstrations we discuss the growth of bone and study the normal, but the abnormal is also shown, for it emphasizes the necessity of a knowledge of the normal, and the student at the very beginning of his anatomical studies learns that the knowledge he is laboriously acquiring will be of use to him and is really necessary in his after career.

In the dissecting room last winter a student said to me: "But it is only if you are going to be a surgeon that you require anatomy—apart from examinations, of course!" I think this idea can be dispelled by the teacher of anatomy if he uses illustrations of the abnormal in his teaching. Let me give you an illustration: After studying the normal position and movements of the diaphragm on the fluorescent screen, if you show a student an abnormal diaphragm he becomes interested and finds that there is a delightful anatomical problem to be worked out.

In one of the photographs which we show is seen a necrosis of the parietal bone, and the story of how the whole bone was torn out with the scalp by a revolving belt and later on replaced by the doctor in the hope that it would be all right illustrates strikingly the blood supply of that bone.

After the bones and joints we demonstrate the chest. The students screen each other and learn the normal *x*-ray appearances of the lungs and heart. The alimentary tract is full of interest. They take bismuth meals and observe the passage of food through the oesophagus, the shape, size, tone, and position of the living stomach, the passage of food through the small intestine, and the appearance of the colon. The urinary tract is also dealt with, and slides and prints of pneumoperitoneum work form interesting illustrations. The research student also finds that radiography is of use to him

in many ways—for example, in investigating the blood supply of different organs.

We have only made a beginning in Manchester. There is still much to do and infinite scope for development—for example, in stereoscopic radiography. In conclusion, I would urge that radiology is of use in the teaching of anatomy, inasmuch as it gives the student some idea of the structure of the living body which he can compare with his work in the dissecting room. He becomes aware that his anatomical knowledge will be of use to him in his everyday work as an intelligent practitioner of medicine. Radiology makes anatomy of the living possible, and its use in the teaching of anatomy brings the anatomist and the radiologist into a communion which is, I think, mutually helpful, and from which, at any rate, I have derived great pleasure and benefit.

[Dr. Woodburn Morison's paper was accompanied by the exhibition of a number of lantern slides and prints, illustrating what was being done in Manchester.]

## DISCUSSION.

Professor Macphail congratulated Dr. Morison on his correlation of *x*-ray work with anatomy. It was a great help to students to show them how structures worked.

Professor Wilson envied a department which had its own *x*-ray apparatus. He was in the habit of using *x*-ray plates, and had found stereographic plates particularly useful. It was not likely at the present time that many anatomical departments could have their own *x* rays, but they might arrange to share the apparatus of another department.

# THE STRUCTURE OF THE VERTEBRATE HEAD.

BY

W. B. PRIMROSE, M.B., Ch.B.,

Extra Dispensary Surgeon, Western Infirmary, Glasgow: lately Senior Demonstrator of Anatomy in the University of Glasgow.

The problem of the morphological structure of the vertebrate head does not seem to have received scientific attention until Goethe, prompted by the appearances presented by a sagitally divided sheep's skull, suggested the idea of modified vertebral structure for that of the vertebrate head. The cranial axis appeared to him to be composed of several modified vertebrae which all possessed more or less modified arches passing over the brain and under the gut-tube. This suggestion (1790) was never published by Goethe himself, but thirty years later, a contemporary, Oken, published an account of the subject corresponding very closely with that of Goethe.[1]

Without going into details of history, it may be stated shortly that the morphology of the vertebrate head has alternated between extreme views of segmentation (Froriep, van Wijhe, Fürbringer, and others) and extreme views of non-segmentation (Hubrecht[2] and others). Here it is intended to show that the structure of the vertebrate head is based upon the first metameric segment of the body, with which is combined an unsegmented structure which is called the face.

Owing to the limitation of space, it will not be possible to give more than a brief description of the structure of the vertebrate head. Much of the evidence has to be omitted, but if the morphological principles to be stated immediately are followed their application to the problem will not be unduly difficult.

The principle followed in this discussion is that structures arising in the same morphological position, at the same period of evolution or of development, and in the same manner, are homologous structures, and they form a morphological unit. Structures which differ in respect of their origin may be anatomically and physiologically identical, but they are never homologous. This principle eliminates errors due to anatomical relations and appearances, which are variable, but as the origin of the same kind of structures is always constant, we can infer homologies between the structures which will be constant for all forms in which they occur, irrespective of the anatomical variations which homologous structures may present.

When a structure is formed it acquires relations of two distinct kinds. The first or primary relation is that which a structure bears to the structure which gave rise to it or which was responsible for its formation. This relationship is constant and may be called the morphological relationship. It is obvious that there is only one primary or morphological relationship for any structure—namely, that of offspring to parent. The second kind of relation is that which a structure bears to any or every other structure. Such relations are secondary (anatomical), and they are variable to an endless degree.

As the result of applying this principle of identity of origin and of relationship to the skeleton of the head, it is found that this skeleton consists of four morphologically distinct skeletons which are not separable anatomically. In other words, there are four skeletons which arise in different morphological situations, at different times, both in evolution and in development, and in different ways. In order of appearance they are:

1. The sclerotome skeleton.
2. The axial skeleton.
3. The splanchnic skeleton.
4. The facial skeleton.

The *sclerotome skeleton** is the first tissue skeleton to appear in evolution, and it is first formed at the time when the somatic or body-wall mesoderm became segmented for the purpose of acting upon the segmented hydrostatic or water skeleton contained in the coelomic sacs in the Annelida. The mesoderm thus segmented is said to be metamerically segmented (Fig. 1). At this stage we might give two definitions concerning segments.

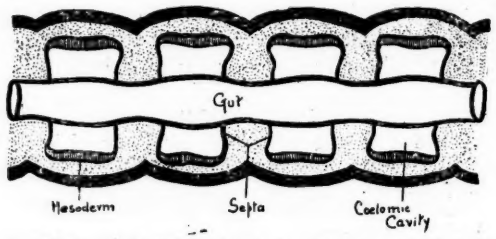



Fig. 1.—Diagram of the hydrostatic skeleton, showing also the segmented condition of the somatic mesoderm and its attachment to the periphery of the coelomic septa which later become the sclerotomes.

A mesodermic segment consists of that portion of mesoderm that is related to one coelomic cavity, and which is repeated in every metameric segment of the body.

A metameric segment consists of all the structures of epiblastic, mesoblastic, and hypoblastic origin related to one coelomic cavity, and its segmented and segmental structures are repeated serially in every unmodified metameric segment of the body. (The term "segmented" is applied to the *condition* of the paraxial mesoderm or to the hydrostatic skeleton, while the term "segmental" indicates the *arrangement* of non-segmental structures relative to a mesodermic or a metameric segment.)

When the hydrostatic skeleton disappears from the coelomic cavities during evolution the septa separating the coelomic compartments remain and continue to give attachment to the segmented body-wall muscles. In fishes these septa become the sclerotomes which give attachment to the myotomes, and they also become modified by the deposit in them of rigid matter forming incomplete arches or arcualia (Gadow). An examination of Fig. 1 will show that each muscle segment is attached before and behind to a fibrous septum. When arcualia appear, they too are twice

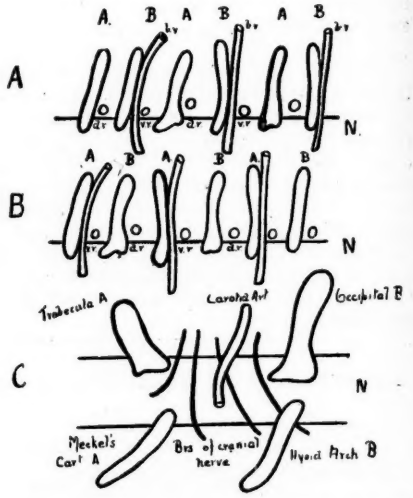



Fig. 2.—A, Arrangement of nerves and blood vessels relative to the arcualia in Petromyzon in the hinder trunk region. B, Same as above, but from the anterior trunk region (Graham Kerr, after Schauinsland). C, Arrangement of the vessels and nerves to the arcualia in the head region of vertebrates generally. *a*, Anterior, and *b*, posterior arcualia. *d.r.* and *v.r.*, Dorsal and ventral nerve roots. *b.v.*, Blood vessel. *N*, Notochord.

* For a more complete account of this skeleton the reader is referred to the *Journal of Anatomy*, vol. lv, parts 2 and 3, January and April, 1921, pp. 119-137.

as numerous as the muscle segments—Cyclostomata and Dipnoi (Fig. 2, A); but as evolution progresses all the "anterior" arches disappear from behind forward (Fig. 3, B), leaving the posterior arches, which become the neural and costal or visceral arches of vertebrates generally. This skeleton is the only one that is primarily segmented in accordance with the metameric segmentation of the mesoderm.

The sclerotome skeleton is best recognized in most vertebrates by the cartilaginous or osseous arches it develops. There are two sets of these arches: those passing dorsally over the neural tube are neural arches from their anatomical relations to that structure, and those passing ventrally in the body wall are the costal or visceral arches from their anatomical relations. The morphological relations of these arches are to myotomes only.

The head segment, being the first segment in the body, is very primitive and presents the primitive arrangement of anterior and posterior sclerotome arches (Fig. 2, C). The neural arches are the trabeculae in front and the occipital arch behind. The anatomical relation of the occipital arch to the neural tube leaves no doubt as to the title of "neural arch," but the trabeculae appear to be different. They are, however, just the same, the relation being to the anterior end of the neural tube—the infundibulum, which turns ventrally to meet the pharynx in this region, thus altering the inclination of the trabeculae to the cranial axis.

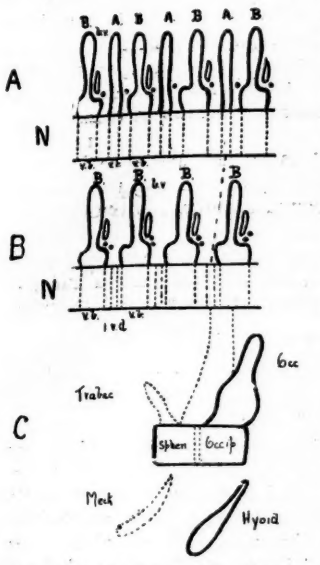



FIG. 3.—This shows the changes from the condition of double arches and vertebrae to that of single arches and invertebral discs. C, The corresponding changes in vertebral axis of the head.

The visceral arches are Meckel's cartilages in front and the sclerotome part of the hyoid arch behind. The morphological origin of these arches is the same as that of the neural arches, which are formed in the sclerotogenous tissue in the neighbourhood of the optic region and in the occipital region respectively (Bardeen[3]). The time of their appearance is when neural and visceral arches are being formed, and the manner of their origin is from before backwards, so that the trabeculae and Meckel's cartilages appear first, the occipital and hyoid arches next, then the remaining arches in the same order. This does not apply so definitely to osseous origin, especially of ribs, as their extreme specialization confers upon them priority of appearance which upsets the primitive sequence.

It will be seen, then, that these arches form the anterior and posterior supports for a single myotome (Fig. 2, C), but as development proceeds in the osseous vertebrates the anterior arches—the trabeculae and Meckel's cartilages—disappear (Fig. 3, C), their place being taken by another skeleton. The sclerotome skeleton of the head segment is now like that of all other segments, having a single neural arch (occipital) and a single visceral arch (hyoid).

The *axial skeleton* is the next skeleton to appear in evolution and in development, and it first appears as the notochord, which is an unsegmented rod of cells of hypoblastic origin. It extends throughout the length of the segmented portion of the animal's body, giving support to the many segments. The notochord presents certain characters which render it unfit to act as an axial skeleton in its unmodified condition, and to overcome these drawbacks the perinotochordal mesodermic sheath forms rings of rigid matter which, by encroaching upon the notochordal tissue, convert the notochord into a segmented axial skeleton.

This segmentation has at first no relation to the metameric segmentation of the sclerotome skeleton, there being as many as four rings per segment as in the Holocephali. It is only later that the perinotochordal segmentation comes to correspond with that of the sclerotome skeleton, resulting in the formation of ring-like vertebral centra with which the sclerotome arches combine. Referring again to the primitive sclerotome arches, it will be seen that there is a stage where there are two vertebral bodies with their arches to every myotome (Fig. 3, A) (J. Graham Kerr[4]), and just as the anterior arches disappear so do the anterior bodies, which probably are represented by the peripheral parts of the intervertebral discs (Fig. 3, B).

In the head the axial skeleton forms the parachordal part of the basis cranii, which consists of the basi-sphenoid and the basi-occipital, the former being the "anterior body," which fuses with the posterior (occipital) instead of disappearing as in other regions (Fig. 3, C). The parachordal tissues show signs of incomplete segmentation in many animals during development, but this takes place before vertebral centra are formed, probably representing a condition similar to that mentioned for the holocephalous fishes, so that such segmentation cannot be homologous with true vertebral segmentation.

The next skeleton to appear during evolution is the *splanchnic skeleton*, and it appears when chordate animals evolve special respiratory organs. The endoderm is the essential tissue of these organs, and it is responsible for the evolution of this skeleton and constitutes its morphological relation. The representatives of this skeleton are the gill-bars in fishes, and the laryngeal, tracheal, and bronchial cartilages in pulmoniferous animals. In all cases this entire skeleton is fixed on to the sclerotome part of the hyoid arch, and in man forms the greater cornua of that bone by means of the hyo-thyroid cartilage (Bardeen[3]). In this way the hyoid bone is formed by the combination of two morphologically different skeletons.

The last of the skeletons to appear is the *facial skeleton*. It is evolved in connexion with the organs of special sense in the form of the capsules of these organs, which combine with the axial and sclerotome skeletons to form the chondrocranium of anatomy. Later, a supplement appears in the form of membrane bone which supports the whole face. It combines with the occipital arch, replaces the trabeculae and Meckel's cartilages except for the malleus, applies itself to the basi-sphenoid as the pre-sphenoid and also to its own sense organ capsules. The existence of this skeleton has been determined by the ectoderm in the form of sense organ, brain, teeth, and general skin covering, and as none of these structures is segmented, neither is the skeleton which supports them.

These few remarks will suffice to show the existence and the difference of the four skeletons in the head, and the importance of this difference may be well demonstrated by referring to the morphological constitution of the anatomical series of arches represented by the mandible, the hyoid arch, and the thyroid and subsequent arches. These are supposed to be an homologous series of branchial arches, but the conditions of their origin upset this supposition. The mandible belongs to the facial skeleton which was determined by the ectoderm, the hyoid arch (sclerotome part) was determined by metamerically segmented mesoderm, and the thyroid and subsequent arches were determined by the endoderm. These arches, since they differ in their origin, cannot be homologous structures.

## THE MUSCLES OF THE HEAD SEGMENT.

### *The Myotome.*

The segmented mesoderm or myotome of the head segment has a history unlike that of any other myotome in the body, and its behaviour is unusual in that it gives rise to no muscles except in cyclostome fishes (Agar[5]), but after forming its sclerotome skeleton it disappears. We can only find the explanation of this by investigating the history of mesoderm. Briefly, it is as follows: When mesoderm first made its appearance its somatic part had to segment itself in order to make use of the segmented hydrostatic skeleton. The purpose of this was primarily to effect locomotion. Locomotion was, and is, accomplished in such animals by moving whole segments of the body relatively to each other. This function of moving whole segments becomes so specialized that even in the development of higher animals myotomes only give rise to muscles which pass between the limits of single segments—for example, interspinales, intertransversales, intercostales, etc. (Lewis[6]).

In the case of the head segment the myotome is formed long before any modification can take place in this segment, and as all cephalic modifications are features of the Craniata they are acquired long after myotomes. We have seen that the segmental limits or sclerotomes of this segment become fixed

to the basis cranii (the mandibular and hyoid joints being formed secondarily), so that the function of the myotome—namely, that of moving the sclerotomes of this segment—no longer exists. There is therefore nothing for this specialized myotomic rudiment to do now but to adapt itself to the new conditions and functions of this segment or to disappear.

The high degree of specialization possessed by a myotome narrows the limits of its adaptability, and the extent of the adaptability of the cephalic myotome is seen in cyclostome fishes where it forms some head muscles (Agar[5]), but in all other forms the myotome fails even to do this, and after forming its sclerotome skeleton it disappears. In the Elasmobranchs it is a disappearing mass of condensed mesoderm known as the "fourth" myotome of van Wijhe. In Lepidosiren, Agar describes a single condensed mass of myotomic mesoderm which gradually resolves into loose unsegmented mesoderm

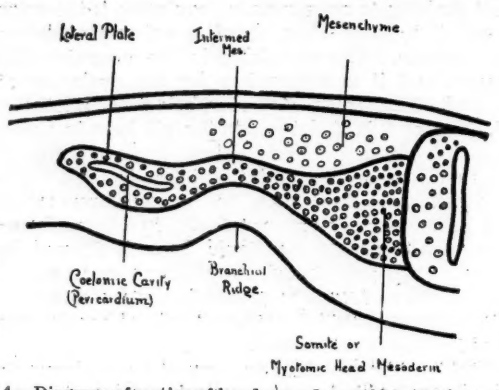



Fig. 4.—Diagram of section of head mesoderm of Lepidosiren embryo (after Agar), showing the dense myotomic mesoderm which extends from behind the auditory region forwards to the optic region. It is in the process of breaking up into loose mesenchyme.

(Fig. 4). It extends from behind the auditory region forwards to the optic region, thus corresponding with the sclerotogenous tissue described by Bardeen for man, in whom also there is only continuous mesoderm prior to the formation of pre-muscle masses (Lewis[6]).

*The Somatopleure.*

The failure of the cephalic myotome to muscularize the highly modified head segment with all its new organs is compensated for by the less specialized unsegmented mesoderm of this region—mesoderm without any history of ancient specialization. This mesoderm gives rises to *all* the muscles of the head. The particular source of this mesoderm in the lower animals—Elasmobranchs for instance—is the dorsal wall of the pericardial cavity which is called the splanchnocoele. Mesodermic stalked buds arise from this and form the special muscles required by the various organs.

The first bud quickly becomes separated from the splanchnocoele, and from it arise the four muscles of the eye innervated by the oculomotor nerve. The second gives rise to the superior oblique muscle, while its stalk forms the masticatory muscles. The third bud forms the external rectus, and its stalk gives rise to the facial musculature. Another bud behind these forms branchial muscles, and alongside the notochord a varying number of so-called occipital myotomes are formed, but these largely disappear. As there are no vertebral bodies present at this time, the only structures to which these "myotomes" are apparently related are notochordal rings, and as these fuse to form the basis cranii, so the "myotomes" disappear. Agar describes the last two of this series as helping to form the hypoglossal and coraco-hyoid muscles after fusion.[5]

In mammals the details are very different, as the pre-muscle masses arise *in situ*, but the same occipital "myotomes" are seen and are described as disappearing. They have not been traced to the origin of any particular muscles (Lewis[6]), although their disappearance by fusion is probably the adaptation of these masses necessary for the formation of special muscles. If this is correct, the occipital masses will form the glossal, infrahyoid, sterno-mastoid, and trapezial musculature, also possibly sharing in the formation of the pharynx, as Agar states to be the case in Protopterus. These occipital masses have been called "myotomes," but an examination of their origin shows that they cannot be homologous with true myotomes.

The general conclusion is that there are no muscles in the head formed from myotomes. This is in agreement both with evolutionary history and also with embryological investigation (Lewis[6]).

## The Splanchnopleure of the Head Segment.

*The Segmental Blood Vessels.*

The splanchnopleure of the head segment is quite as evident as the somatopleure. It forms the musculature of the heart and the anterior of the great vessels, and the musculature of the fore-gut, which includes that of the pharynx and larynx.

The heart has long been regarded morphologically as a cephalic viscus, so that it is not necessary to say more about it here. What is of more importance at present is the aorta which gives off the segmental arteries to the various segments. The caudal displacement of the heart in evolution and in development has led to the formation of a ventral aorta which communicates with the dorsal aorta by a series of aortic arches which pass in relation to gill-pouches. These arches are repeated in branchiomeric order, and they are of great physiological importance: they have no metameric segmental significance, as somatic segmental arteries are present in addition to branchial arterial arches. With the change to pulmonary breathing, these arches are made use of to effect the changes in arterial redistribution. Some arches disappear and others persist, and it so happens that since all aortic blood is equally oxygenated, the internal carotid artery is part of the dorsal aorta, while the external carotid is now part of the ventral aorta and is joined to the internal by the persistent third arch. This is the embryological means to the morphological end, which is constant in that the common carotid artery is constituted the segmental artery of the head segment.

A segmental artery is an artery arising from that portion of a non-segmental arterial trunk which traverses the metameric segment. It is distributed to the structures within that segment and, in addition, supplies branches to structures beyond the segmental limits, forming anastomoses. The segmental artery is repeated serially in every unmodified segment of the body. The segmental artery to the head segment is the common carotid. It arises from the non-segmental aorta and passes to the head segment, presenting the same three sets of branches that are found in every segmental artery. We may call these —(1) the somatic carotid artery, (2) the splanchnic carotid artery, and (3) the spinal carotid artery.

The somatic carotid artery is represented in man by the external carotid and its branches, with the exception of the superior thyroid, ascending pharyngeal and other splanchnic branches. These branches are differentiated and specialized in keeping with the size and number of the parts of the somatic part of the head segment. The branches anastomose with each other and with somatic branches of vessels posterior to the carotid—subclavian and intercostal.

The splanchnic or visceral carotid artery is represented by the superior thyroid and ascending pharyngeal branches in man. These supply gut structures belonging to the head segment, and these arteries anastomose with splanchnic branches of other aortic vessels.

The spinal carotid artery is represented by the internal carotid artery itself. This is a branch of the common carotid artery which gives off no branches until it reaches the interior of the cranium, where it supplies the brain and its extensions, optic and olfactory. It passes into the skull through the intervertebral foramen (Fig. 2, C), breaking up there into branches like the medullary branch of any spinal artery. It effects anastomoses in the same way with the vessels of the opposite side and with those behind, forming the circle of Willis. The internal carotid is larger than any other spinal artery because it has a much larger amount of tissue to supply, and it is only in man that it is so very large in comparison with the combined somatic and splanchnic branches. The spinal artery of the next segment is the terminal part of the vertebral artery, which is formed indirectly by the hypoglossus artery of early development. Spinal arteries are most constant in size and arrangement, and for this reason the internal carotid artery is a very reliable morphological and anatomical indicator of its segment.

The vein of the head segment is represented by the jugular system, of which the tributaries correspond closely with those of the artery, and it presents the same morphological relations.

*The Gut Derivatives.*

When speaking of the conditions of metameric segmentation and of its definition, it was pointed out that the condition arose as the result of the segmented condition of the hydrostatic skeleton, and that it only affected the somatic mesoderm forming the myotomes and their sclerotome skeleton. Neither the ectoderm, nor the endoderm, nor the mesoderm immediately related to either ever become segmented themselves, but, by being related to the segments of mesoderm more or less closely, the vessels and nerves supplying these unsegmented tissues are arranged more or less segmentally. This arrangement, in its more primitive condition, has led to the idea that gut and skin have some close relation to segmentation. There is, however, little morphological relationship between segmented and unsegmented structures. They are only anatomically related by nerves and blood vessels. This being the case unsegmented tissues do not necessarily observe segmental limitations, and the gut is an excellent example of such a condition.

The gut related to the head segment by the vagus nerve varies in different animals, but in man it includes all the parts of the fore-gut—that is, pharynx, respiratory system, and digestive tract with its appendages down to the second part of the duodenum. When this extent of gut is related to the developing vagus nerve, the relation with the head segment is quite evident. The stomach later acquires its sympathetic nerve supply during its descent into the abdomen (Lewis[7]).

The behaviour of the coeliac axis artery during development also indicates the complete want of segmental form in the gut. This vessel arises opposite the seventh cervical segmental artery and descends to below the twelfth dorsal segment along with the stomach (Evans[8]). No segmental artery, so long as it is a segmental artery, can move about in this way.

In some malformations of the acardiac type there is, corresponding with the absence of the heart, absence of the entire head segment, the thoracic viscera, and of the gut down to the middle of the duodenum—that is, the whole fore-gut.[9]

It is apparent, then, that the whole fore-gut is related to the head segment. It has, like all the other embryological layers in the head region, become very extensive and enormously specialized, and it no longer observes the morphological limitations of its associated segment.

*The Ectoderm Related to the Head Segment.*

As the parts related to the head segment have become so extensive and specialized, it is to be expected that the ectoderm will present a similar condition. So far is this the case that the ectoderm forms three categories of structures—namely, the central nervous system, the organs of special sense, and the general skin covering of the head and face. This includes the lining of the oral, nasal, and conjunctival cavities, and the exterior of the gill mucous membrane in gill-breathing animals. There is an intimate morphological relationship between these three groups of structures, but as it has no immediate bearing upon the present considerations we shall pass straight on to the nerve of the head segment.

The definition of a segmental nerve is as follows: A segmental nerve is a nerve which contains fibres for innervating all the epiblastic, mesoblastic, and hypoblastic structures related to one coelomic cavity, and it is serially repeated in every metameric segment in the body. In vertebrates segmental nerves usually observe the segmental limits and leave the neural axis by passing between adjacent neural arches which alone form the intervertebral foramina. As many of the cranial nerves have been looked upon as segmental nerves themselves we shall examine the various neural foramina and see how far they agree with the morphological neural or intervertebral foramen.

In the human skull the olfactory nerve does not leave the cranial cavity at all, but the optic nerve does so through a foramen in the orbital-sphenoid. As both of these nerves are extensions of the neural tube they are not homologous with the other nerves. The oculomotor, trochlear, abducent, and ophthalmic divisions of the trigeminal nerve all pass through the superior orbital fissure of the sphenoid, which is facial skeleton. The next two foramina are also in the sphenoid and transmit the maxillary and mandibular divisions of the trigeminal nerve. The chorda tympani passes through the petro-tympanic fissure, which is an interval between the sphenoid and the otic capsule, which are both parts of the facial skeleton. The facial and auditory nerves both enter the petrous bone, which is part of the facial skeleton. The glosso-pharyngeal, vagus, and spinal accessory leave by the jugular foramen, which is bounded by the petrous bone of the facial skeleton in front and by the exoccipital of the sclerotome skeleton behind, while the hypoglossal nerve passes through the exoccipital in its own canal.

It will be seen that none of these foramina is a true intervertebral foramen, as none is bounded before and behind by a sclerotome arch. The only segmental neural foramen is the morphological gap between the site of the trabeculae (pituitary fossa) (Fig. 2, C) and the occipital arch. This gap is now filled up by part of the facial skeleton, which is perforated for the passage of nerves and blood vessels. This is in complete agreement with the development of these foramina, which differs considerably from that of intervertebral foramina.

If it be remembered that the somatic muscles of the head are all formed from unsegmented somatopleure, and that there is now no myotome, it will be realized that all the somatic motor nerves are of the same kind, and that they are all homologous with the spino-occipital nerves of Fürbringer, which is the name given to a variable group of motor nerves occurring anatomically between the vagus and the first spinal nerve. Morphologically, this group of somatopleural nerves of the head region is represented by the oculomotor, trochlear, motor part of the trigeminal, abducent, and facial nerves. These are all motor nerves to the muscles related to the facial skeleton. The corresponding nerves of the metameric part of the head segment include the hypoglossal, spinal part of the spinal accessory, and those cervical branches to the infrahyoid muscles, trapezius, and sternomastoid. Here is another instance of the disregard for segmental limitations.

The sensory somatic nerves are the trigeminal and auditory to the facial ectoderm. The auditory nerve is originally a differentiated and specialized branch of the fifth nerve (Owen[10]). In the metameric part of the head segment somatic sensory ganglia are developed on the roots of the spinal accessory and the hypoglossal, but these disappear, and are probably related to the ectoderm of the gill-pouches which are obliterated by the closure of the cervical sinus.

Of the splanchnic nerves there are none in the facial part of the nerve, as there is no gut in the face. But in the head segment there are three specialized branches of the visceral nerve—the glossopharyngeal, vagus, and the cerebral part of the accessory nerve.

Such is the constitution of the nerve of the head segment, and, so far as the nerve can be called segmental, it is only by looking upon these various nerves as the differentiated and specialized branches of a single mixed nerve that we can account for the endless variety in the details of their distribution and relations that is seen among vertebrates.

This brief statement of the "single segment" point of view of vertebrate head morphology is all that can be given here, but sufficient has been said to show what extreme specialization may be reached by a primitive structure subject to evolution. A simple, almost unmodified, metameric segment is the morphological basis of the vertebrate head, and the mesodermic segment has given place to structures more suitable and efficient for the changed conditions. Little remains now of the primitive segment. The one structure pointing to the segmented condition is the internal carotid artery, which, through all the evolution of segmented chordate animals, has maintained its segmental independence as the spinal artery of the head segment.

[Since the completion of this paper the presence and behaviour of the cephalic myotome have been worked out in the chick. The results confirm the above theory. The reconstructions and sections showing the cephalic myotome were exhibited in the Section of Anatomy at the Annual Meeting. Corresponding investigations in the head mesoderm of the mammal are now being contemplated.]

References.

1 Sir G. H. Lewes: *The Life of Goethe*, p. 365.
2 Hubrecht, A. W. W.: *Die Gastrulation der Wirbeltiere:* Anat. Anzeiger Cent., 1905.
Bardeen, C. R.: *The Morphogenesis of the Skeletal System* (Keibel and Mall, Human Embryology, 1910).
4 Kerr, J. Graham: *A Textbook of Embryology*, 1919, vol. ii.
5 Agar, W. E.: *Trans. Roy. Soc. Edin.*, 1907, vol. xlv.
6 Lewis, W. H.: *The Development of the Muscular System* (Keibel and Mall).
7 Lewis, F. T.: *The Development of the Stomach* (Keibel and Mall).
8 Evans, H. M.: *The Development of the Vascular System* (Keibel and Mall).
9 Compare with descriptions of microcephalic and acephalic acardiac malformations, *Catalogue*, Teratological Series, Museum Roy. Coll. Surg. Eng., 1893.
10 Owen, R.: *Anatomy of Vertebrates*, 1866, vol. i, p. 305.

## SOME OBSERVATIONS ON THE SHAPE OF THE PALATE IN CHILDREN.

BY

W. KERR CONNELL, M.B., CH.B.,

Glasgow.

THE following remarks are based on a study of over a thousand dental impressions, or rather "bites," obtained from the mouths of Glasgow board school children of ages ranging from 4 to 14 years. The method by which these "bites" were obtained and the manner in which they were measured were as follows:

A layer of plasticine (approximately 2 mm. thick) was spread evenly on oblong cards, about 1 mm. thick, and of suitable size and shape. The school children were asked to bite on these cards, thus leaving impressions of their teeth. The age and sex of the child were in each case noted on the back of its card. Each bite so obtained was placed beneath thin square-millimetre paper, previously rendered completely transparent by moistening with cedar-wood oil. In this way it was found possible to make accurate tracings of the various "bites," so that they could be easily and correctly measured.

These measurements are not yet completed—indeed, it will be months before they can be finished—so that I need not refer to them in detail. Such figures as I may allude to in connexion with the growth of the palate, the variations in its shape, and the times of eruption of the permanent teeth, have been culled from a much smaller series of "bites"—a sort of "trial series" which I worked out some months ago.

The reasons for collecting a series of "bites" were: (*a*) To learn something about the chief variations in shape of the palate; also the relative incidence of these shapes at different ages and in the two sexes. In this connexion the objections may be made that a "bite" gives no true indication of the actual shape of the palate, and also that it tells us nothing about the height of the palate. The latter objection is unanswerable, but the former is open to debate. (*b*) To see what variations in shape (if any) may be caused by certain diseases—for example, adenoids. (*c*) To gain information, if possible, about the growth of the palate. (*d*) To obtain statistics as to the periods of eruption of certain of the permanent teeth. (*e*) To learn definitely whether or not the size of the palate bears any relation to the general size and development of the individual. These five points may now be dealt with serially.

(*a*) Nine definite and distinct types of palate were found to exist, and the following table shows their relative incidence:

| | |
|---|---|
| (1) Oval* ... ... ... ... ... | 57.18 per cent. |
| (2) Wide oval ... ... ... ... | 11.59 ,, |
| (3) Pointed ... ... ... ... | 7.81 ,, |
| (4) Narrow oval ... ... ... ... | 6.55 ,, |
| (5) Square oval ... ... ... ... | 4.79 ,, |
| (6) Square ... ... ... ... | 4.29 ,, |
| (7) Asymmetrical... ... ... ... | 4.01 ,, |
| (8) Bell—Type B ... ... ... ... | 2.27 ,, |
| (9) Bell—Type A ... ... ... ... | 1.51 ,, |

*By far the commonest type, in both sexes and at all ages.

It may be observed that "narrow ovals" are much commoner in girls than in boys, and that "squares" are commoner in boys than in girls. The remaining shapes occur with approximately equal frequency in the two sexes.

(*b*) With the kind assistance of Dr. Syme, I was able to obtain a small series of 45 "bites" from the mouths of patients at the Western Infirmary suffering from pronounced adenoids. Judging by the statements made in most surgical textbooks, one would have expected to find a preponderance of small, narrow, pointed impressions. It was therefore decidedly surprising to discover, in this series of "bites," a striking absence of such characteristics. In fact, little or no deviation from the normal could be seen. The majority of the "bites" showed the ordinary "oval" features.

(*c*) I cannot say much about the growth of the palate until my statistics are completed; but one rather suggestive feature is shown (from observations on the original small series of "bites")—namely, a slight fall in the intercanine measurement between the 11th and 14th years. This seems to indicate an actual absorption of bone in this situation.

(*d*) When speaking of "eruption" in connexion with these tooth impressions I mean, of course, an eruption of sufficient degree to register a mark on the plasticine: the actual eruption must precede this. Permanent incisors and canines do not leave sufficiently characteristic impressions to enable them to be distinguished from the corresponding temporary teeth, but all the other teeth leave markings which are quite unmistakable. The results of studying my original series of "bites" from this point of view show that, while eruption occurs earlier in the male, it is more rapidly completed in the female.

(*e*) Early in the course of investigations it became quite clearly apparent that the size of the plate bears absolutely no relation to the general size and development of the individual child.

In conclusion, it may be stated that my chief purpose in publishing these results in their incomplete and unfinished form has been to bring forward the method adopted. It seems to me to be the only practicable method of studying the palate in children, for any elaborate system—such as the taking of plaster-of-Paris casts—is quite out of the question, and would lead to a hue and outcry on the part of the children's parents.

---

## A MESENTERIC CYST OF JEJUNAL ORIGIN COMPLICATED BY RETROJEJUNAL POSITION OF THE TRANSVERSE COLON.

BY

JOHN I. HUNTER, M.B., CH.M.,

Associate Professor of Anatomy, University of Sydney.

THE specimen described in the following paper is of interest on account of the clear connexion to be traced between fatal pathological conditions of the alimentary tract of a newborn child and their developmental origin. It consists of the viscera, with their peritoneal attachments, of a child who died seven days after birth.

The mother, a primipara, had manifested symptoms of threatened eclampsia during pregnancy, but was delivered at full time. The presentation was of the breech variety, and difficulty was experienced in extracting the after-coming head. On examination the child exhibited great abdominal distension, particularly of the upper part of the abdomen; there was also facial paralysis and talipes of the right foot. The child took its food fairly well and its bowels were kept going with enemata. It appeared to be in constant pain. It did not thrive, and died at the end of seven days.

*Post-mortem* examination revealed a considerable quantity of free fluid in the peritoneal cavity; two large cyst-like growths were found in the mesentery, and the transverse colon was observed to be absent from its usual position and to be behind the small intestine and the attachment of the mesentery. On account of these features the abdominal contents were removed in order to be submitted for further examination. The patient was under the care of Dr. R. N. Gibson, who transmitted the specimen to the Anatomy Department, University of Sydney; and his resident medical officer, Dr. Sinclair, of the Crown Street Women's Hospital, Sydney, performed the *post-mortem* examination and supplied the above notes. When the alimentary tract was examined the duodenum was found to be somewhat dilated (1.5 cm. in diameter). The distended tube had its usual U-shaped bend, but its terminal limb was in contact with the greater curvature of the stomach and first part of the duodenum, to which it was bound by fine adhesions (Fig. 1). The jejunum for 10 cm. beyond the duodeno-jejunal flexure was still further distended (2.5 cm. in diameter); beyond this point it commenced a circular course from right to left, along the edge of two well-marked cystic swellings which were lying along its mesenteric border and between the two layers of mesentery (Fig. 1). The jejunum was stretched transversely upon these swellings so that its lumen was slit-like in cross-section. The swellings on external examination appeared to be two separate oval cysts lying side by side, but on opening their walls they were found to be two loculi of a single cyst, communicating with one another at the intestinal border of the mesentery by an opening 1 cm. in diameter (Fig. 1, B).

The wall of the cyst is on the average 3 mm. in thickness and contains what is apparently a considerable sheet of muscle tissue. The fluid within the cyst was dark brown in colour, apparently revealing the occurrence of haemorrhage some time previously. Each loculus is of considerable size, that on the right measuring 55 by 43 mm. and that on the left 68 by 41 mm. Each loculus is somewhat larger than the specimens mentioned by Keith.[1] One of these (No. 1952 A, St. Bartholomew's Hospital Pathological Museum) measured 45 by 25 mm., and the second specimen (No. 2523, Royal College of Surgeons, England, Museum) was 25 mm. in diameter. These represent two of the three cases of cysts in connexion with the small intestine, which he discussed in a

review of the 156 cases of diverticula of the alimentary canal which are to be found in museum collections in London. Professor Keith is of the opinion that these cysts owe their origin to diverticula of the small intestine which have become closed off by constriction of the neck adjacent to the point of communication with the bowel. Moynihan, in a recent lecture, supported a similar view.

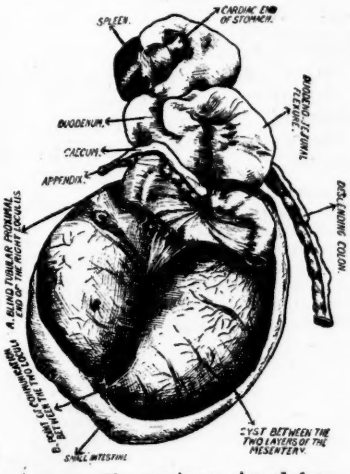



FIG. 1.—The specimen viewed from the front. The jejunum and ileum are represented as having been partially removed to display the cyst. The transverse colon is hidden behind the first part of the jejunum.

The present specimen is of interest in connexion with the etiology of the mesenteric cyst because its wall contains all the elements found in the wall of the intestine; and yet, as a careful dissection showed, no communication existed at the time of examination with the intestine. The original structure from which the cyst has been formed is exhibited with clearness at the most proximal part of the swelling (Fig. 1, A). Here the cyst is prolonged into a blind tubular extremity 13 mm. in diameter, which lies parallel to the adjacent jejunum. The lumen of this tube is comparatively small (4 mm. in diameter), and its wall is predominantly muscular. A portion of this blind extremity of the swelling was submitted for examination to Professor D. A. Welsh, Pathology Department, University of Sydney, whose report is included here.

"The lumen of the hollow tube contains a mass of leucocytes, mixed with fibrin and recently extravasated red blood cells. The leucocytes form the main portion of this mass, and the majority appear to be neutrophiles with polymorphous nuclei, indicating some persistent irritation.

"The lumen of the tube is lined by a thick layer of a highly vascular granulation tissue. Next the lumen the granulation tissue cells are greatly swollen, tend to lose their nuclear structure and their individuality, becoming fused to form a continuous cytoplasmic mass, which is relatively non-vascular.

"Beyond this zone the granulation tissue is more cellular with numerous small cells, well-staining nuclei, and abundant small blood vessels with well-defined endothelium and blood content. In the deeper zone fairly numerous isolated cells of the granulation tissue appear to be undergoing necrosis. One or two of them fuse together, stain deeply with haematoxylin instead of with eosin, and ultimately become unrecognizable as cells, resembling rather spicules of some foreign matter embedded in the tissue. These necrosing cells may be in process of calcification, and may represent the starting point of larger calcareous masses which are to be found in the wall of the cystic portion of the tumour.

"There is no trace of an epithelial lining to the lumen, but that fact does not necessarily mean that epithelium has never been present there. It may have disappeared under pressure or under the long-continued inflammatory process.

"The muscular coat represents roughly three-fifths of the total thickness of the tube, about one-fifth being the granulation tissue of the inner coat and about one-fifth the thickened subserous coat.

"The transverse section of the tube cuts many of the muscle bundles in transverse and oblique section, especially in the inner two-thirds of the muscular coat, indicating that the bundles there tend to run longitudinally along the wall of the tube. But the outer third of the muscular coat is definitely and uniformly disposed in a circular manner around the tube.

"All these muscular bundles are irregularly, but on the whole widely, separated by a great inflammatory increase of the intermuscular connective tissue. In places this increase is highly cellular; in other places it has undergone a great expansion to a less vascular and highly myxomatous tissue.

"External to the muscular coat the outer fifth of the wall of the tube is made up of a relatively enormous thickening of the subserosa. This thickening has a loose fibro-cellular structure with numerous and relatively large thick-walled blood vessels, and a few nerve fibres.

"There is no evidence of any new growth in the sense of neoplasia. The tumour appears to consist of a greatly inflamed structure, suggesting a portion of altered bowel wall, possibly a diverticulum that has now been cut off from the bowel from which it originally started."

There appears to be no reasonable doubt that the cyst in this specimen originated as an enteric diverticulum. Lewis and Thyng[2] have shown that intestinal diverticula occur regularly in embryos of the pig, rabbit, and man, and that their presence has been noted in the cat and sheep. The diverticula are more numerous in the older embryos studied, and occur especially in the distal part of the small intestine. The human material studied by these authors showed—

"That solid knob-like diverticula of the intestine may occur before the formation of the dorsal pancreas, but that older embryos from 7.5 to 10 mm. may be without them. An embryo of 13.6 mm. showed one prominent duodenal pocket, with indications of 12 others along the small intestine. At 23 mm. 33 pockets were counted, and in an older embryo there were 48. In these, and in an embryo of 32 mm., no diverticula were found along the large intestine and vermiform appendix" (p. 513).

They believe that these diverticula degenerate, sometimes becoming detached to form cysts. In a 20 mm. pig embryo, which showed twelve intestinal diverticula, they found a thin-walled epithelial cyst with a few rounded outpocketings just outside the muscularis of the duodenum a short distance from the pancreas, together with a solid cylindrical outgrowth of the intestine which extended to the muscularis. This they interpret as the original stalk of the cyst, which has been carried along and its direction altered by subsequent growth of the intestine. Undoubtedly the present case is a clear example of such a cystic degeneration of a detached diverticulum of the small intestine. According to the current classification[3] the diverticulum falls into the congenital class, being characterized by the possession, in the first place at all events, of all three coats of the small intestine. Acquired diverticula have been defined as consisting of mucosa and serosa only (false diverticula), but they may exhibit all three coats (true diverticula).[4]

The second important abnormality of the alimentary tract exhibited by the specimen is the position occupied by the transverse colon, which was detected at the *post-mortem* examination. The ascending colon is short, and the right colic flexure bends round the jejunum to lie behind the root of the mesentery and that part of the jejunum proximal to the commencement of the cyst. The ascending and transverse colon are both provided with a mesocolon, which is attached along its fixed edge to the posterior wall of the adjacent jejunum and the root of the mesentery. The mesocolon and mesentery are continuous at the ileo-caecal junction. The transverse colon passes into the left colic flexure and descending colon, but these parts have been denuded of peritoneum in the process of removal.

The question which must be decided is whether the two abnormal conditions of the alimentary canal are causally related to one another. The retrojejunal position of the transverse colon may be explained by supposing that the rotation of the intestine was from right to left as usual, but that the transverse colon in the process became folded behind the mesentery and the upper part of the jejunum, which is attached by it to the posterior abdominal wall (Fig. 2). How

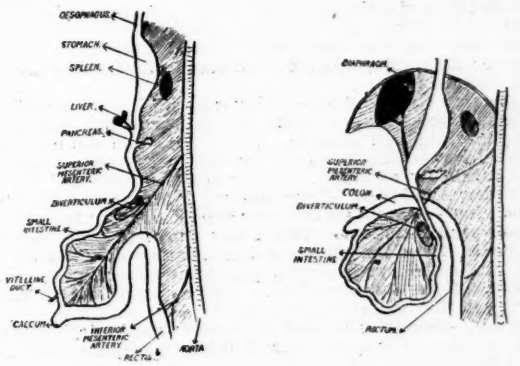



FIG. 2.—A diagram representing the effect of malrotation of the intestine to explain the retrojejunal position of the transverse colon.

could such an abnormal rotation occur, and has it been brought about by the presence of a diverticulum of the intestine which had undergone cystic dilatation at the time rotation occurred? Frazer and Robbins have recently reviewed the problem of the development of the intestine and the manner in which the final relationships of its various parts are assumed.[5] They believe that it is impossible for the umbilical coils to return *en masse*, and that the alteration in position is accomplished by a movement of each limb of the intestinal loop in turn, the proximal limb first and the distal limb next.[6] This is due to the shortness of the umbilical colon compared with the peritoneal attachment of

the small intestine, their belief being that the colic angle beyond the distal limb is held in position by a "retention band" which blends with the mesenchyme surrounding the superior mesenteric artery; this tissue grows less rapidly than the caudal end of the body.

The immediate result of the return of the colon after the proximal intestinal limb is that it lies in front of the coils of small intestine, with the caecum wedged in from behind between these coils and the liver, the caecum being the last to return. That is to say, at about the tenth week of development the return of the umbilical coils and the rotation of the gut occur as parts of one process. Now, if we suppose that in the specimen being described the distal limb returned first and then the proximal limb afterwards, the result found at birth would be produced. For, in this case, the last portion to return (the small intestine) would lie in front of the transverse colon, which would have already taken up its position. Such a reversion of the order of return leading to malrotation could conceivably occur if the proximal limb were anchored in position, and I suggest that such an anchorage may have been produced by the presence of a cystic diverticulum of the small intestine. In this case we must suppose that the pathological development of the enteric diverticulum must have occurred before the tenth week, so that the return of the distal limb was more easily accomplished than the proximal. After its return to the abdomen the cyst enlarged sufficiently to interfere with the normal peristalsis of the neighbouring bowel, so leading to partial obstruction with consequent malnutrition of the child and ultimately to death.

In conclusion it is a pleasure to express my thanks to Dr. R. N. Gibson and Dr. Sinclair, who furnished the specimen, and to Professor D. A. Welsh, who provided the pathological report, which has been included with the foregoing description, and on which some of the conclusions have been based.

References.

[1] British Medical Journal, 1910, vol. i, p. 376. [2] *American Journal of Anatomy*, vol. vii, 1907–8, p. 505. [3] Telling and Gruner: *British Journal of Surgery*, vol. iv, 1916–17, p. 468. [4] Op. cit., pp. 469–470. [5] *Journ. Anat.*, vol. l, 1915–16, p. 75. [6] Op. cit., p. 93.

# Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

### TWO CASES OF ACUTE LYMPHATIC LEUKAEMIA.

The following account of two cases of acute lymphatic leukaemia in infants seems of sufficient interest to warrant publication.

#### Case I.

The first case was that of a female aged 3 years, who had been healthy until three weeks before admission, when her parents noticed that she was paler than usual. She was admitted on December 30th, 1921, and died the same night with symptoms of cardiac failure.

*Post-mortem Examination.*—Cadaver pale. Purpuric spots on legs and chest. No superficial glandular enlargement. Purpuric spots on pericardium and pleurae. Heart pale and flabby. Thymus normal. No enlargement of mediastinal glands. Mesenteric glands markedly enlarged. Spleen slightly enlarged. Liver and kidneys large and pale. Bone marrow of femur pink in colour.

*Blood Film.*—A film was taken on admission and showed lymphocytes 89 per cent., myelocytes 5 per cent., polymorphonuclears 3 per cent., transitionals 1 per cent., large mononuclears 2 per cent. The small lymphocytes predominated—76 per cent. to 24 per cent. of the large variety. Anisocytosis was marked and normoblasts and megaloblasts frequent.

*Histology.*—Sections showed the usual lymphatic infiltration in all the organs. The bone marrow of the femur appears devoid of fat and consisted chiefly of lymphocytes and red corpuscles.

#### Case II.

The second case was that of a male aged 2½ years. A month before admission the cervical lymph glands were noticed to be enlarged. The child was admitted on August 1st, 1922, with acute angina, and died the same night.

*Post-mortem Examination.*—All the lymphatic tissues were enlarged. Superficial glands of neck, axillae, and groins, tonsils, thymus, mediastinal and mesenteric glands very much enlarged. Peyer's patches prominent. Liver and kidneys enlarged and pale. Spleen very little enlarged. Purpuric spots on pericardium.

*Blood Film.*—This showed lymphocytes 99 per cent., of which the small variety numbered 82 per cent. and the large 17 per cent.

*Sections.*—All the organs showed lymphocytic infiltration.

The points of interest are: (1) the ages—3 and 2½ years; (2) the fact that one patient was a female; (3) in one case the lymphatic tissue enlargement was confined entirely to the abdominal glands, while in the other all the lymph glands in the body were involved.

W. E. Cooke, M.D., F.R.C.P.E., D.P.H.,
Hon. Pathologist and Bacteriologist, Royal Albert Edward Infirmary, Wigan.

### CASE OF SPLENO-MEDULLARY LEUKAEMIA.

The following case is of interest on account of the acute onset and of the marked improvement in the general condition which followed treatment by *x* rays, the removal of a source of sepsis, the use of an autogenous vaccine, and the exhibition of arsenic internally.

A married woman, aged 33, was admitted to the Leicester Royal Infirmary on March 23rd, 1922. She gave a history of ill health for a period of six weeks, complaining of weakness, giddiness, headache, and vomiting, with severe pain in the left hypochondrium. She had been losing flesh for three weeks.

On admission she was thin and pale, with a dry, furred tongue, bad pyorrhoea, and a spleen enlarged to two inches below the umbilicus and one inch beyond the mid-line (Fig. 1, *a*). There was no liver or glandular enlargement and no tenderness of the long bones. The optic discs were normal. Her pulse was small and rapid, and she was very ill indeed. On March 23rd a blood count showed: red cells, 3,333,000; leucocytes, 53,125; haemoglobin, 40 per cent. Smears were crowded with myelocytes and normoblasts. A small faintly Gram-positive diplococcus was obtained from a blood culture, but unfortunately it was found impossible to subculture the organism. The pathologist remarked that the blood picture was typical of spleno-medullary leukaemia. At that time the temperature ranged between 99° and 103° (Fig. 2, *a*), with an evening rise, and the pulse was 120 to 140.

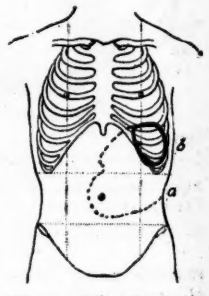



Fig. 1.—Size of spleen—(*a*) on admission, (*b*) on discharge.

The first *x*-ray exposure was given on April 6th. It consisted of one pastille dose to the spleen and long bones. This was repeated twice a week. During the first week the temperature fell to normal in the morning and never rose above 100° in the evening

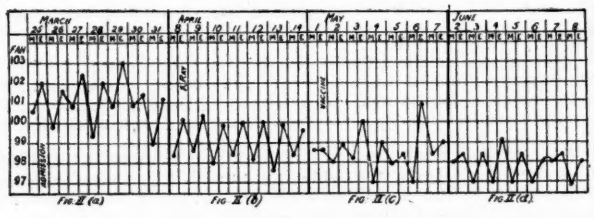



Fig. 2.—Portions of temperature chart showing character of the variations under treatment.

(Fig. 2, *b*). On April 19th her lower incisors, canines, and upper and lower molars and premolars were removed under nitrous oxide. Cultures from tooth fangs contained streptococci, diphtheroid bacilli, and *Micrococcus catarrhalis*, and an autogenous vaccine was prepared. On April 29th the first dose of vaccine was given; this was repeated every fifth day until eight injections had been given. The temperature became more irregular, but rarely rose above 99° (Fig. 2, *c*). A slight reaction occasionally followed the injection of the vaccine. On May 5th the blood count was: red cells 3,300,000; leucocytes 23,000; haemoglobin 50 per cent. Myelocytes and one normoblast were found.

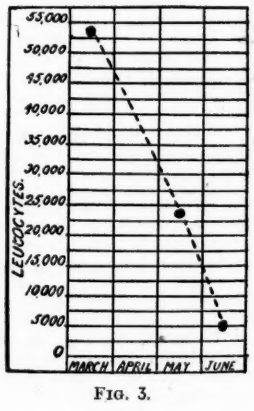



Fig. 3.

From June 2nd the temperature rarely rose above normal (Fig. 2, *d*) and the pulse was slower though somewhat irregular. During the whole of the time she was in hospital she was taking arsenic by the mouth. From the beginning of the *x*-ray treatment the spleen steadily diminished in size, and when she left the hospital it could not be felt below the costal margin. The patient was quite well, had no pain nor discomfort, and the blood count on June 21st was: red cells, 3,066,000; leucocytes, 5,625: haemoglobin 50 per cent. Myelocytes were still present but they were extremely few. No other abnormal cells were found.

I wish to thank Dr. Crosby, physician to the Leicester Royal Infirmary, under whose care the case was, for permission to publish these notes.

A. Dorothy Pocock, M.B., B.S.,
House-Physican, Leicester Royal Infirmary.

# Reports of Societies.

## MEDICAL SOCIETY OF LONDON.

The annual general meeting of the Medical Society of London, which inaugurated the 150th session, was held on October 16th. Mr. James Berry vacated the chair in favour of Lord Dawson of Penn, whom he invested with the presidential badge. In a review of the year's work Mr. Berry mentioned that the Fellowship of the Society now included 625 names, and that the average attendance at the meetings during the past session was forty-seven. A very hearty vote of thanks was accorded to Mr. Berry, and another to Dr. Mitchell Bruce, who is retiring after a long tenure of the treasurership. The balance sheet of the Society reveals a flourishing condition, with a balance of assets over liabilities of £6,640, without including the uncertain value of the library and furniture, which is moderately estimated at £5,000.

Lord Dawson then delivered his presidential address on "Certain developments in medicine," which is printed at page 781. The address was excellently received, but Lord Dawson's departure from precedent in calling for discussion after an address from the chair met with very little response.

Sir Humphry Rolleston proposed a vote of thanks to the President for an admirable and fascinating address of the kind which required to be pondered over before it could be adequately discussed. One interesting point which Lord Dawson had raised was the possibility of the gradual change of diseases in their type. Within the lifetime of any one medical man it was difficult to estimate accurately how much change of type in disease there might be. To what extent the wear and tear of London or of American life had altered the character and relative incidence of diseases it was very difficult to decide. The matter was confused also by the fact that the nomenclature of diseases altered as well as, possibly, their characteristics. But from George Cheyne's *The English Malady* (1733) he gathered that neurasthenia, although not then called by that name, was an almost universal disease in the early part of the eighteenth century, and he could not help wondering whether the great importance now attached to nervous diseases was due, not to the new prevalence of those diseases, but to the fact that medical men were better educated and nervous diseases more easily detected. With regard to the psycho-analysts, of whom Lord Dawson had spoken, he thought that Freud's general conception, apart from the special development of it in connexion with sexual matters of which so much had been heard, was one for which they ought to be grateful. It was possible that the principle which Freud had put forward had been directed by some of his followers and also by himself along too special lines. The sexual element, after all, must not be allowed to monopolize the field. The psychoneuroses of the war, for instance, had no sexual element; they had to do with an instinct equally strong—that of self-preservation. Lord Dawson had paid a handsome tribute to Sir James Mackenzie for his work on the early symptoms of disease. In that tribute they would all concur. Sometimes it might be a little difficult to follow what was being done at St. Andrews, but in justice to the institute the fact must be borne in mind that it had undertaken an enormous task, and that years possibly would have to elapse before any particular result was obtained. Another question which Lord Dawson had raised was the need of medical institutions for people of moderate means. With this principle, again, they would all be in agreement, though it was a difficult problem as to how exactly such institutions should be run. He was aware that many different methods had been proposed, but he felt that if he discussed their respective merits he might find himself in the position of the Irishman who, after listening to a rather fervid protest to the effect that one man was as good as another, replied, "Faith, and a good deal better too!"

Sir John Broadbent, in seconding the vote of thanks to Lord Dawson, said that they were grateful to him because, in spite of all temptations to be a politician, he had remained a medical man.

Dr. Lennox Wainwright, commenting upon Lord Dawson's reference to modern hurry and stress, said that this had an important bearing upon the treatment of the mind. Gladstone used to say that change of occupation was rest, but he doubted whether that principle held good to-day in view of the complication and haste of modern life. Another point was the desirability that the physician should judge how the patient would bear or interpret the knowledge he might impart to him with regard to his condition. Some patients, for example, had the most curious notions with regard to the dangers to be apprehended from micro-organisms. He knew a lady who shrouded each doorknob she turned with a handkerchief, believing that it was a mass of microbes. Patients were easily led astray by a physician's warning or counsel, so that they took a graver view than their case justified. The psychology of the patient must be studied.

The vote of thanks was accorded by acclamation, and Lord Dawson acknowledged the compliment.

## MYOMECTOMY FOR UTERINE FIBROIDS.

A meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine was held on October 5th, with Dr. T. W. Eden, President, in the chair, when Dr. Arthur E. Giles read a paper on the subject of indications and results of myomectomy for uterine fibroids.

Dr. Giles said that in recent discussions on the treatment of uterine fibroids the alternatives of hysterectomy on the one hand and *x*-ray and radium treatment on the other had generally been dealt with as though they exhausted the possibilities of treatment. Myomectomy had been almost entirely overlooked. He held the view that in the majority of cases of fibroids requiring surgical treatment hysterectomy was the more suitable and also the more satisfactory operation, and that the scope of myomectomy was restricted to the minority of cases. Hysterectomy needed no justification; it was generally accepted as a sound procedure, surgically and clinically. But myomectomy had to justify itself by its results, and to state reasons why it should be preferred; it had also to acknowledge its limitations and to define the conditions of its suitability. The outstanding claims for myomectomy were, first, that the uterus was preserved for the important function of child-bearing; the second that the patient was spared thereby the mental distress of feeling that an essential part of her womanhood had gone.

In regard to the immediate results, Dr. Giles's figures from the end of 1910 to date were as follows: hysterectomy, 684 cases, 5 deaths—mortality 0.73 per cent.; myomectomy, 107 cases, 1 death—mortality 0.93 per cent. There was, therefore, very little difference in the mortality of the two operations; certainly not enough to make that a deciding factor in the choice of operation. In his work on the after-results of abdominal operation, published in 1910, he was able to give particulars of 40 cases traced out of 51 operated upon; of the later 116 cases he had particulars of 53. He did not attempt to trace the histories of patients who were over 45 years of age at the time of operation. Of 88 cases examined in the earlier and in 79 of the present series the uterus was free from fibroids, and in 9 cases further tumours were found. The inference from this was that the liability to return to fibroids might be represented as 10 per cent. Excluding cases in which the menopause preceded or synchronized with the operation, particulars about the character of menstruation after the operation were obtained in 83 cases; in 67 of these, or 80.7 per cent., the menstrual loss was normal or moderate; the remaining 16 patients suffered from excessive loss. To help in gauging the value of the results it might be stated that in 31 out of 51 cases in the present series at least six years had elapsed between the time of operation and the report on the case. In both series there were fifty women under 45 years of age who had a chance of becoming pregnant, including three who were single at the time of operation and married afterwards. Of these 14, or 28 per cent., became pregnant.

Comparing the advantages of myomectomy with its disadvantages, it might be said that the advantages were represented by the occurrence of pregnancy in 28 per cent. of the women who had the chance of pregnancy and by the satisfaction which patients derived from the consciousness that after the operation they remained "like other women." The disadvantages were the possibility of the return of fibroids, which was a 10 per cent. chance, and the possibility of further menstrual trouble, which was a 20 per cent. chance. The risk of a second operation being necessary was not as great as 10 per cent.; hysterectomy had been required in only five cases out of the total 167—that was, in just 3 per cent. The younger the patient the greater should be the effort to save the uterus, and his opinion was that, broadly, myomectomy was the operation of choice in women up to the age of 40. In single women the indication was not so great as it was in

married women, especially after the age of 30. When a tumour was solitary and pedunculated and not associated with excessive bleeding a myomectomy might properly be done, whatever the age of the patient and the chances of pregnancy might be. Even an interstitial tumour unassociated with haemorrhage might be enucleated. After the age of 40 to 45 he considered that hysterectomy should be the rule, especially when there were multiple fibroids and when there were excessive haemorrhages. Whatever the position or number of the tumours, if myomectomy was going to leave a battered and useless organ hysterectomy should be done. Cervix fibroids almost invariably called for hysterectomy, though he had occasionally done a myomectomy even in these cases. The mere number of the tumours did not matter so long as a good and serviceable uterus was left. When a patient suffered from excessive haemorrhage and was seriously drained thereby, hysterectomy should be the rule.

Fibroids associated with pregnancy did not necessarily call for surgical treatment. When they were causing no symptoms and did not seem likely to interfere with labour it was best to leave them alone, always provided that the patient could be kept under observation so that operation could be undertaken if urgent symptoms arose. Myomectomy during pregnancy was indicated in three groups of conditions: first, when the tumour or tumours appeared to be increasing rapidly in size; second, when the patient was suffering from pain, pressure symptoms, or indications of septic or degenerative changes in the tumours; third, when the position of the fibroids made it probable that labour would be obstructed, in which case myomectomy was done for the purpose of avoiding the necessity for Caesarean section and of allowing the confinement to take place naturally. In all he had had thirteen cases of myomectomy during pregnancy. The period of gestation ranged from a few days to six months. The results of the last two cases he had been unable to trace; in the remaining eleven the pregnancy was not interfered with, and all of them went to full term, except one whose labour came on at 7½ months, but the child was alive and survived. Myomectomy during pregnancy was evidently a most satisfactory operation.

*Scope and Technique of Myomectomy.*

Mr. VICTOR BONNEY read a paper on the scope and technique of myomectomy. He said that myomectomy in principle fulfilled a higher surgical ideal than hysterectomy. He recorded a series of 100 consecutive myomectomies to show that within wide limits neither the number nor position of the tumours in the uterus, nor the presence of degeneration, nor the accompaniment of menorrhagia or pregnancy, was a bar to successful performance of the operation. The largest number of fibroids that he had removed from the uterus in a single case was thirty, but he did not regard this as the limit of possibility. Anterior tumours were more favourably placed for enucleation than posterior tumours, because they could all be got out through an anterior incision, but many posterior tumours could also be removed by the same route. Malignancy and sepsis of course barred the operation, whilst naevoid degeneration made the operation more formidable; but with these exceptions degeneration of the tumour, or tumours, had no bearing. In regard to the technique of the operation, Alexander of Liverpool laid down the right principle twenty-four years ago—namely, an anterior incision in the uterus, and if possible all the tumours removed through that one incision. The speaker then proceeded to show by diagrams the manner in which the enucleation cavities could be closed by suture. When fibroids were complicated by pregnancy and an operation was required, myomectomy should be combined with Caesarean section if the child was viable. If the child was not viable the ideal procedure was to remove the tumours and leave the pregnancy *in situ*; where many tumours were present, however, this was impossible, and the pregnancy should be removed through the same incision as the fibroids. He had two deaths in his series of 100 cases; all the other patients had done well, and none of them had returned to him with new fibroids or return of the bleeding. Five patients had become pregnant subsequent to the operation; of these, one had fourteen, another eight, and another five, fibroids removed, and two had one fibroid each removed. Four of these patients delivered themselves naturally. The remaining one was delivered by Caesarean section, but the condition of the uterus at this second operation showed it to have been unnecessary. He hoped that in the future it will be common knowledge that fibroids do not, as a rule, necessitate hysterectomy, and that if the possessors of these tumours will only submit themselves to early surgical treatment their wombs need never be removed.

The PRESIDENT cordially agreed with the ideals expressed by Mr. Bonney. He had always thought and always taught that the removal of the uterus was surgically a very crude procedure to adopt in order to deal with a benign growth. The surgically ideal procedure must be to remove the neoplasm and conserve the organ in which it grew. His own practice had been to adopt myomectomy much more freely than Mr. Bonney seemed to think was the case with most gynaecologists, and he welcomed the efforts which were being made by the authors to call attention to its advantages.

Professor BRIGGS had long ago recognized the increasing sphere of enucleation in the progressively earlier treatment of uterine fibroids; he appreciated the illustrative modern reports in the papers just read. Allusion had been made to Dr. Alexander's work in Liverpool prior to 1898. At that time Professor Briggs by many laboratory tests of enucleation had convinced himself that the older fibroid growths, degenerated and adherent to their capsules, were physically unsuitable for enucleation. In his opinion enucleation was at its best when the scalpel could be thrust directly into the substance of the thyroid, cutting it into halves or less, reducing its bulk and providing for the insertion of an appropriately strong sharp hook for its extraction with the minimum surgical interference with its capsular connexions. Fantastic uterine tunnelling was unnecessary. It had to be borne in mind that after the most thorough uterine palpation a fibroid growth might remain.

Dr. HERBERT SPENCER thought the authors of the papers on enucleation of myoma had performed a useful service in calling attention to the value of the operation, which he supposed every gynaecologist practised and preferred, in suitable cases, to hysterectomy. He was surprised, however, to find no reference in either paper to the most valuable form of enucleation—namely, through the cervical canal. The papers well illustrated the pitfalls of statistics, Dr. Giles (after careful inquiry in a proportion of his cases) giving the percentage of recurrence as 10, Mr. Bonney (without any adequate inquiry) giving it as 0. No doubt the percentage was somewhat greater than that found by Dr. Giles, and it constituted a serious objection to the operation, especially when carried out by the abdominal route and with the added risk of ventrofixation. Mr. Bonney's method of enucleation was ingenious but complicated, and in Dr. Spencer's opinion unnecessary. One danger, the possible infected condition of the tumour, had not been alluded to. He had seen in a virgin a case of fibroids containing abscesses infected with streptococci successfully treated by total hysterectomy. The case, had enucleation been performed, would almost certainly have terminated fatally, as happened in a case in which a conservative Caesarean section was done for an obstructing fibroid infected with the bacillus of gas gangrene. Although infection of fibroids which did not give rise to symptoms was rare, he thought it was important, particularly in cases complicating pregnancy, that a bacteriological examination of the tumour should be made before or at the time of the myomectomy.

---

THE first meeting of the Royal Medico-Chirurgical Society of Glasgow for the session 1922–23 was held on October 6th. The President, Dr. A. Maitland Ramsay, delivered his inaugural address on "The clinical significance of failing sight." The address covered a wide field, and was illustrated by clinical references. Dr. Ramsay pleaded for a closer co-operation between the ophthalmic surgeon and the family doctor, and showed that "failing sight" was a symptom observed in many disease conditions occurring in family practice.

---

A MEETING of the Cambridge University Medical Society was held at Cambridge on October 18th, when, before an audience of nearly 500, Dr. G. DRUMMOND ROBINSON, obstetric surgeon to the Westminster Hospital, delivered a lecture on "Normal labour," illustrated by a cinematograph film and lantern slides. The film shown was in two parts, one of a vertex case, the other of a breech case, each subdivided into a diagrammatic part showing the processes of labour as if seen in section, and a part showing the process in an actual case.

# Reviews.

## THE CURE OF LEPROSY.

In his *Handbook on Leprosy*[1] Dr. Ernest Muir, one of those who have had the privilege of applying to Sir Leonard Rogers's researches the acid test of practice, gives clear account of the method of administration of the new and potent remedies provided for the practitioner's use. They are chiefly the fatty acids and ethyl esters derived from hydnocarpus and chaulmoogra oils. Chaulmoogra oil has of course long been known as a popular remedy for leprosy, but when taken internally its benefits were found to be very limited because it always sooner or later seriously upset the stomach. Sir Leonard Rogers, setting himself the task of isolating the active principle of the crude oil, has provided us with the fatty acids and their ethyl esters, which, injected intramuscularly or even intravenously, are free from the objections to which the parent oil is open and form a most potent remedy against the disease. Even in advanced cases excellent results can usually be obtained. It is not too much to say that we are now upon the threshold of one of the greatest triumphs of modern medicine—the control of leprosy. Dysentery, cholera, leprosy, the three dragons of the tropics, have now been robbed of half their terrors by the genius of a single man of science. How shall the legendary achievement of our patron St. George compare with a record such as this? In his modest little volume Dr. Muir tells the story of the commencing subjugation of leprosy in clear and simple terms, such as they who run may read. All those who are in any way concerned with the leprosy problem, whether on the clinical or the administrative side, should buy it, for they will learn much from it. All those who are interested in the achievements of modern medicine should read it, for it marks one of the moments when it is possible to be proud of human effort.

This little book has made its appearance at an opportune moment. The curse of leprosy is as old as history, but it is only during the last very few years that the victims of this terrible scourge have had any prospect before them other than incarceration in a leper asylum to eke out an existence embittered by increasing physical disabilities. To these children of calamity Sir Leonard Rogers has brought new hope. From all over the leper-stricken areas of the world comes report after report of lepers discharged from their asylums or colonies as cured. Their doctors, standing amazed, hardly believing the evidence of their senses, publish statistics of "lesions disappeared," "apparently cured," for the achievement seems too good to be true. On the other hand, lepers in the early stages of the disease, contrary to their whilom habit of concealing their trouble in order to avoid as long as possible confinement to the leper colony, are coming forward in increasing numbers to seek the new salvation.

## TUBERCULOSIS.

The second edition of Dr. Pottenger's large work on *Clinical Tuberculosis*[2] is almost a reproduction of the first, which was published in 1917. It consists of two volumes, of which the second contains three more illustrations than appeared in the first edition and twelve more pages, owing to the inclusion of a chapter on influenza and tuberculosis. The first volume deals with the pathological anatomy, pathological physiology, diagnosis, and prognosis of tuberculosis. The author holds that the disease is primarily one of the lymphatic system, the organs being slightly and the regional glands markedly infected; in secondary lesions the reverse is the case. Great stress is laid on the importance of universal testing of children with tuberculin, but it is admitted that a positive reaction should not cause undue anxiety if the child remain healthy. Treatment by tuberculin is strongly advised for children suffering from partially quiescent lesions. All will not concur in these views, and by a good many authorities d'Espine's sign is not considered so valuable an aid in diagnosis as the author believes it to be. Palpation of the tissues on each side of the dorsal spine for evidence of resistance is highly praised for the detection of enlarged mediastinal glands. The classification of the early symptoms due to toxaemia, reflex causes, and to the tuberculous process *per se* is a valuable contribution to the subject; active tuberculosis, it is maintained, may exist without toxaemic symptoms. The chapters on the nervous system in tuberculosis and on traumatic tuberculosis will well repay perusal. Perhaps too much stress is laid on the presence of haemoptysis as diagnostic of tuberculosis, and bronchiectasis, in which it is common, finds no mention. The value of tuberculin in diagnosis and prognosis is emphasized, frank and prompt reactions being looked on as positive evidence of active tuberculosis. Objection is wisely made to the advice often given to patients who have lately suffered from tuberculosis to take up some country occupation to which they are not accustomed and for which they are perhaps totally unfitted. A long chapter by Dr. Joseph Pottenger on laboratory methods is included in the first volume. The second volume deals with the complications and treatment of the disease. The authors have found tuberculin of great service in tuberculous laryngitis. Special importance is attached to pleurisy, whether dry or moist, as a cause of tuberculosis; pneumothorax was not found so fatal as is usually supposed. Immediate removal of a tuberculous kidney is not recommended: it is stated that conservative measures should first be tried, and that tuberculin has its uses. A favourable climate, though beneficial, is not essential for the treatment of tuberculosis. Food, rest, and exercise, open air, hydrotherapy, heliotherapy, home treatment, sanatorium treatment, and the numerous factors in the proper conduct of the disease receive thorough consideration, the sanatorium being considered the ideal place for treatment. A warning is given against the all too prevalent custom of removing the tonsils from children on the slightest pretext, heedless of their action as protective agents. A history of many cases with an instructive discussion on each of them and a chapter on influenza and tuberculosis complete the volume. As the various chapters may be almost looked upon as monographs in themselves they can be read individually without reference to the rest of the work: this plan necessitates some repetitions, but owing to the excellence of the contents is excusable. The two volumes contain the results of Dr. Pottenger's labours for many years, chiefly as director of the sanatorium of Monrovia, California. The publishers are to be congratulated on the way in which they have carried out their part of the undertaking.

Dr. David C. Muthu's book on *Pulmonary Tuberculosis: Its Etiology and Treatment*[3] is founded, as the author tells us on the title-page, on twenty-two years' observation and work in open-air sanatoriums. The book is divided into three parts, dealing respectively with etiology, treatment, and the social and economic factors of tuberculosis. The author is no believer in the germ theory. Such sentences as the following arrest attention: "The presence of tubercle bacillus is not a decisive factor in the development of tuberculous processes" (p. 13). "Tuberculosis . . . is a deficiency disease" (p. 13). "It is a blood dyscrasia" (p. 13). "Glands may be normal and healthy, and yet may contain tubercle bacilli" (p. 32). We do not think most authorities will subscribe to this statement: "A tuberculous gland may not contain any bacilli whatever" (p. 66). "Cases of phthisis can occur without the presence of tubercle bacilli" (p. 69). "The social, economic, and industrial factors more largely influence the incidence and mortality of tuberculosis than any tuberculous infection" (p. 83). "If we do not know how tubercle bacilli get into the body, it is perhaps because in the majority of cases they do not enter from the outside at all, but are formed within the body" (p. 168). "When tubercle bacilli appear on the scene, they do so as the effect of a cause, as the product of vicious environment; or if they have entered as a saprophyte . . . their pathogenicity is the result of deranged nutrition" (p. 172). It would seem, therefore, that the author does not consider the tubercle bacillus is the cause of tuberculosis; neither does he believe in contact infection, or that the prevalence of tuberculosis in children may be due to cow's milk. The first part of the book concludes with a chapter of twenty-seven pages on the early diagnosis, symptoms, and prognosis, which might have been omitted. Naturally, the author's views on the etiology of the disease prevent him from having any belief in the efficacy of tuberculin and vaccines, which he has found wanting. Sanatorium

[1] *Handbook on Leprosy.* By Ernest Muir, M.D., F.R.C.S.Ed. Cuttack: R. J. Grundy. 1921. (Demy 8vo, pp. 118; 52 figures, 4 plans, 2 plates. Rs. 7.)

[2] *Clinical Tuberculosis.* By F. M. Pottenger, A.M., M.D., LL.D. With a chapter on Laboratory Methods by J. E. Pottenger, A.B., M.D. In two volumes. Second edition. London: H. Kimpton. 1922. (Med. 8vo. Vol. I: pp. 707, 105 figures, 6 plates; Vol. II: pp. 725, 65 figures, 4 plates. £3 15s. net the two volumes.)

[3] *Pulmonary Tuberculosis: Its Etiology and Treatment.* By D. C. Muthu, M.D., M.R.C.S., L.R.C.P. London: Baillière, Tindall, and Cox. 1922. (Demy 8vo, pp. 381; 28 figures. 12s. 6d. net.)

treatment is thoroughly considered in the second part. As a result of his experience the author finds that 80 per cent. in the first stage, 40 to 45 per cent. in the second, and 8 per cent. in the third get well. Such a recommendation as two or three days' excursion in the charge of a doctor at the sanatorium may be suitable for a private institution, but is hardly practicable in a public one. Continuous inhalation is highly praised, but its physiological, chemical, and psychic effects are considered far to outweigh any benefit obtained from its germicidal action. The mask designed by the author is illustrated and prescriptions for the three inhalants he employs are given. The third part contains a chapter on the prevention of tuberculosis; the most important factors in prevention as well as in treatment are considered to be social and economic, and with this opinion most will be able to agree. The volume concludes with a consideration of tuberculosis in relation to marriage and parenthood. The book is interesting, and, though containing repetitions, gives much food for thought.

## A GERMAN TEXTBOOK OF PSYCHIATRY.

DR. PH. JOLLY has written a short guide to psychiatry,[4] intended for the use of students and practitioners. The aim is essentially practical, and theoretical discussions have as far as possible been avoided. The first edition was published in 1913, and the present volume contains some additional matter, notably a description of the Binet-Simon intelligence scale and a brief account of the psychoses associated with or caused by service, military or otherwise. The first part is devoted to general psychiatry, and in successive sections an account is given of symptomatology, diagnosis, pathological anatomy, prognosis, and treatment. In the second part Dr. Jolly gives an outline of the various forms of mental disorder. He approaches his subject in a conventional manner, and confines himself strictly to the descriptive method. Indeed, it is interesting to observe how little German psychiatry, as exemplified in this volume, appears to have been influenced by the interpretative and individual method of Bleuler, Freud, and Jung, while in other countries, and more especially in America, its effects are so apparent. Though the book contains the main facts which the student must know, it is as a whole singularly uninspiring, and no effort is made to interest the reader by means of diagrams or illustrations, or by reference to actual cases. It is of course difficult to include case histories in a small manual, but there is no necessity to make psychiatry quite so uninteresting as the author here succeeds in doing. As the book is only designed to contain the usual subject-matter of the small textbook, it does not include any new work of special interest to the English psychiatrist.

## THE SCIENCE OF CHEMISTRY.

IN MELLOR'S *Inorganic and Theoretical Chemistry*[5] is undertaken the exposition of the whole of the science which relates to the composition of matter and the transformations of its constitution and structure. The whole work is to be completed in six or seven volumes of about 1000 pages each, and of these two have appeared; the first is introductory to the system under which the study is pursued, and in it is considered the chemistry proper of hydrogen and oxygen only; the second volume deals with the halogens and the alkali metals. The other elements are to follow mainly in the order of the periodic table; newer work on the constitution of the atom is to appear in the third volume.

The method and purpose displayed in the elaboration of this treatise are an attraction and give it distinction. We find narrated in it the history of the acquisition of knowledge in the science; the epoch-making discoveries are properly emphasized, and the way in which ideas were evolved and conceptions of theory developed is shown with amplitude of detail. Colour is given to these descriptions by the apposite quotations prefixed to almost every paragraph in the first volume. Of these, two may be cited; the first near the beginning (p. 5), from Aristotle: "The mind is like a blank tablet upon which experience writes that which is perceived by the senses." The second towards the end (p. 569), from Humphry Davy: "I thank God that I was not made a dexterous manipulator, for the most important of my discoveries have been suggested to me by failures." But it is not to be supposed that the work is intended only for those who take their science in an easy chair; quite the contrary, for every section of the subject is treated with scholarly completeness, and wherever mathematical relationships are important—as in chemistry they grow to be ever more and more—they are fully elaborated.

The highest merit of such a work is that the subject-matter of each section is so set out that each is not only lucid in itself but made to shed light on kindred questions. To achieve this are needed, first, the gift of being a true chemist; secondly, a power of clear expression, for there is no wealth of technical nomenclature in chemistry to compensate the tendency of the English language to slip into ambiguity; and thirdly, the faculty of opportune repetition in altered phraseology which saves the student both fatigue and misapprehension. In these respects the work is particularly excellent; the older foundations of the science are so described as to give them their highest educational value and the newer developments are made to fit into the context of description so as to afford a coherent account of the subject. The author is to be congratulated on having performed a difficult task with great credit. Connexion and coherence of ideas are ensured by showing the changes of view which have attended the growth of discovery and the genesis and development of well-established theories. Dates of events are quoted as frequently as the names of experimenters which appear in almost every narrative of experiment. The fault of giving disproportionately large space to the theory and but a meagre account of the facts of experience, which has become common in modern books, is avoided. In this volume we find a wealth of the basic facts of chemistry including many of less ordinary interest which it can be seen are destined sooner or later to acquire supreme interest, and all are given in such connected relation as to build a firm framework.

Volume II, being more occupied with the plainer descriptions of properties of substances and of their reactions, affords less scope for the individuality of the author than Volume I. It will suffice to say of it that the information is comprehensive in respect both of basic facts and their theoretical aspects.

The work contains a sufficient number of figures illustrating apparatus, crystals, including space-lattice systems, curves, and diagrams. References to authoritative memoirs and original papers are systematically given at the end of every section. The indexes are good but might with advantage have been more extensive.

Misprints and errors are rare. In Volume I, at page 104, $\frac{1}{12.8 \times 10^{20}}$ is inadvertently rendered as $12.8 \times 10^{-20}$, but for so large a volume of matter the number of such instances of oversight are remarkably few. In the same volume (p. 922) is the sentence, "A current of gas is placed [*sic*] along the annular space between the two tubes"; but none will carp at the choice of the word "placed" for "led" when the work is so well written as to render such a sentence conspicuous.

To the student whose vocation or enthusiasm is to lead him beyond the mere threshold of the science of chemistry this work will prove invaluable, and it is likely to produce disciples who without it might have never been attracted to chemistry. It will be an almost indispensable companion to the teacher of chemistry.

## DISEASES OF THE EAR.

THE success which attended the first edition of Dr. KERRISON'S *Diseases of the Ear*[6] has led to the appearance of a second within the space of eight years. The general plan of the first edition, wherein the author sought to describe and discuss fully matters of importance which received scanty attention in the older books, is retained in the new edition, and, in truth, the additions are not of any great moment. There is a short chapter on Bárány's theory of cerebellar control and another on war deafness. The latter seems to be a very short summary of the book *Otites et Surdités de la Guerre* by Bourgeois and Sourdille, which was so helpful to aural surgeons during the war. The alterations in Dr. Kerrison's new edition being slight and chiefly in the form of additional chapters, it follows that, as before, the perspective is good and the book as a whole well proportioned. Especially

[4] *Kurzer Leitfaden der Psychiatrie für Studierende und Ärzte.* Von Dr. Ph. Jolly, Privatdocent für Psychiatrie und Neurologie an der Universität Halle. Second revised edition. Bonn: A. Marcus and E. Webers. 1922. (Demy 8vo, pp. 264. M. 43; bound, M. 55.)

[5] *A Comprehensive Treatise on Inorganic and Theoretical Chemistry.* Vol. I and Vol. II. By J. W. Mellor, D.Sc. London and New York: Longmans, Green, and Co. 1922. (Roy. 8vo. Vol. I, pp. xv+1065; 12 figures; Vol. II, pp. vi+894; 89 figures. £3 3s. net each volume.)

[6] *Diseases of the Ear.* By Philip D. Kerrison, M.D. Second edition, revised and enlarged. Philadelphia and London: J. B. Lippincott Company. (Med. 8vo, pp. xxi + 596; 335 figures, 5 plates. 35s. net.)

to be commended are the sections on operations and on intracranial disease. The details of myringotomy might have been given with more precision, but the mastoid operations and their extensions are well described, though the reader is left a little uncertain as to what the author regards as the most satisfactory after-treatment of the simple mastoid operation. Ossiculectomy is described, but the reader is given to understand that the author has never performed it, and does not recommend it. The chapter on facio-hypoglossal anastomosis, however, is half-hearted and unconvincing. In an American work a certain tolerance as regards language must be granted from the British point of view, and with this reservation it may be said that the writing is good, though at times it is apt to become colloquial. It is, however, fairly free from Americanisms, though such a word as "blennostatic" gives pause for a moment.

We feel, however, that the present edition might have been brought more thoroughly up to date, especially had the writer given more attention to his British colleagues. For instance, in oto-sclerosis, although the views of Gray are quoted, they are not his most recent views. Again, the author still speaks of the sclerotic mastoid and makes no mention of the researches of Cheatle, now classical, although he does mention that in some temporal bones the sclerosis does not appear to be associated with tympanic disease. The work of Fraser on suppuration in the labyrinth and the work of Scott and Jenkins on meningitis also go unmentioned. Perhaps unkinder still is the illustration of Ballance's flap in the plate devoted to plastic operations on the meatus. The flap is represented as cut upside down. This is worse than mere neglect. It seems, therefore, that the author has confined himself too closely to American and German literature, and that had he expended as much care on the second as he did on the first edition he could have done still better. Though we have felt bound to call attention to certain faults we cannot give higher praise than to say that we know of no better book on the subject.

## THE ENCYCLOPAEDIA MEDICA.

IN a foreword to the eighth volume of the second edition of the *Encyclopaedia Medica*,[7] the indefatigible editor, Dr. J. W. BALLANTYNE, explains the reasons, such as the war, the high cost of production, and the sudden death early in 1920 of Mr. C. E. Green, the originator of the scheme of this huge undertaking, which have delayed the appearance of this revised edition; he is now able to say that the remaining four volumes should appear at intervals of six months or thereabouts.

The volume before us extends from "labyrinth" to "mammary gland," and in addition to a large number of shorter articles contains thirty-four principal articles dealing with the diseases of the larynx, liver, lungs, lymphatic system, the mammary gland, and malaria. There are new articles on diseases of the lacrymal apparatus by Mr. H. M. Traquair, on lethargic encephalitis by Professor J. M. Beattie, on lumbago by Dr. Alexander Goodall, on lunacy by Sir John Macpherson, on tuberculosis of the larynx by Dr. A. F. Hewart (who has also assisted Sir Robert Philip in the revision of the articles on pulmonary tuberculosis and pneumonoconiosis), and on the surgery of the lungs and thorax by Mr. Frank E. Jardine. Some alteration in the authorship of the articles has naturally been necessitated by the passage of time; thus Dr. Norman Walker has handed over his article on lupus erythematosus for revision to Dr. R. Cranston Low; the article on malaria has been revised by Dr. J. G. Fowler, that on leprosy has been largely rewritten by Lieut.-Colonel D. G. Marshall, and Professor G. H. Wilson (now of Birmingham) has assumed responsibility for the account of leucocytosis originally contributed by his teacher, Professor R. Muir. In the much-enlarged article on tropical, parasitic, and other diseases of the liver Sir James Cantlie has had the able assistance of Dr. Aldo Castellani, and Mr. D. M. Greig has helped. Sir Harold Stiles in the freely illustrated account of diseases of the mammary gland. The description of lethargic encephalitis has been condensed into rather less than four pages, and the protean character of the clinical manifestations has hardly received sufficient notice. In the revision of his important article on leucocythaemia Professor G. Lovell Gulland speaks of the more rapid and certain action of radium as compared with that of *x* rays, and ascribes it to the superior penetrating effect of radium and not to any essential difference in action, so that the greater penetrating power now obtainable with *x* rays will probably be equally effective. In the treatment of lymphadenoma he has recently tried injections of colloidal copper with good effect, which may be due to the well-marked febrile reaction, which is possibly of the nature of protein shock.

This instalment fully maintains the reputation that the *Encyclopaedia Medica* has won, and the editor may be heartily congratulated on the continued success of his efforts.

[7] *Encyclopaedia Medica.* Second edition. Vol. viii, Labyrinth to Mammary gland. Under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Edinburgh and London: W. Green and Son. 1922. (Roy. 8vo, pp. x + 704; 9 plates, 75 figures. Price 30s.)

## NOTES ON BOOKS.

IN a handy volume, *Vaccins et sérums*[8] (the first of the Bibliothèque des connaissances médicales, which he is also editing), Dr. APERT, physician to L'Hôpital des enfants malades, Paris, gives a clear summary of our present knowledge of the subject, together with some account of the changes that take place in the body after injection of vaccines and serums. This is prefaced by an account giving the history of Jennerian vaccination, of Pasteur's work, and of antidiphtheritic serum. Other antitoxic serums, those for tetanus, botulism, and cobra venom, are then described, and separate chapters are devoted to the serum and vaccine treatment of the various infections. The account of the treatment of bacillary dysentery contains a long extract from an article published last year by d'Hérelle on bacteriophages. The work of Flexner on antimeningococcic serum is mentioned, but the well-known researches of the Rockefeller Institute on the strains of the pneumococcus and the serum for cases of pneumococcus type I infection are not referred to, though a multivalent serum prepared against types I, II, and III by Truche of the Pasteur Institute is noticed. In reference to Coley's fluid Roger's view that the active agent is *Bacillus prodigiosus* and not the streptococcus finds a place. The serum treatment of gangrene and haemophilia occupies a chapter, and there is a good description of serum disease. Lastly, the anti-anaphylactic method of treatment is summarized, with an account of Danysz's administration of vaccines, obtained from faecal bacteria, for various chronic diseases, such as eczema, dyspepsia, and intestinal disorders.

There certainly have been—and perhaps there are now—medical poets of the first water. But, with the exception of Professor Henry Tonks, we cannot call to mind any medical painter whose work can be thought of as comparable in its own way with the exquisite poetry of Keats or the polished verse of Goldsmith and Bridges. Pictorial art, unlike poesy, seems seldom to have drawn any man away from medicine. We are moved to this reflection by finding among the miscellaneous volumes sent to us for review a copy of Mr. HENDERSON'S pleasant book on *Romney*.[9] Many of our readers would probably enjoy it, but it has little or nothing to do with doctors or doctoring. George Romney painted one or two medical portraits (for instance, that of Joseph Allen, M.D., in the Dulwich College collection, painted in 1778), and one of his early pictures showed the arrival of Dr. Slop on a memorable occasion in the history of Tristram Shandy. He had painted Sterne's portrait at York, and as Mr. Henderson says: "Probably Romney knew by sight Dr. Barton (a deformed person with a very large head) who was said locally to have been the original of Dr. Slop. The people of York were accustomed to the appearance of this accoucheur riding mud-spattered astride his tiny pony." Beyond these slender threads we can trace no direct relation between our profession and this delightful English artist whose work is perhaps in greater esteem to-day than at any previous time. It would be out of place, therefore, with so many medical works clamouring for attention, to dwell further upon a small volume whose claim is upon the physician's *horae subsecivae*.

In his volume, *A History of the Association Psychology*,[10] Professor HOWARD C. WARREN gives a comprehensive account of the associationist movement and endeavours to trace back recent developments of psychology to their source in the writings of this school. The book is the product of careful historical research and constitutes a valuable addition to the literature of psychology. An exhaustive bibliography is appended, giving references to the ancient and mediaeval writers, to the British and Continental contributors to the associationist doctrine, and to the more recent investigations of association problems.

[8] *Vaccins et sérums.* Par Dr. Apert. Bibliothèque des connaissances médicales. Paris: Ernest Flammarion. 1922. (Cr. 8vo, pp. vii + 282. Fr. 7.50 net.)

[9] *Romney.* By B. L. K. Henderson, D.Litt. British Artists Series, edited by S. C. Kaines Smith, M.A. London: Philip Allan and Co. 1922. (Fcap. 8vo, pp. xii + 159; 8 illustrations. 5s. net.)

[10] *A History of the Association Psychology.* By Howard C. Warren, Stuart Professor of Psychology at the University of Princeton. London: Constable and Company, Ltd. 1921. (Pp. 328. 16s. net.)

# Nova et Vetera.

## THÉOPHRASTUS RENAUDOT, M.D.,

ORIGINATOR OF NEWSPAPERS.

Of few human institutions can it be said that they had their beginning at any definite date. When we get back to the man who seems to have a good claim to be considered the founder we find that he was preceded by others who had the same idea but not the wit or opportunity to work it out. Subject to this qualification, it may fairly be said of Théophrastus Renaudot, Doctor of Medicine of the ancient University of Montpellier, that he was the founder of the newspaper, if by that term we understand a paper published at regular intervals and giving the news of the day. Broadsheets had been issued during the later part of the sixteenth century in Italy and Spain, and also in the Netherlands, but they appeared only when material had accumulated to fill them, and interruptions of communications, owing to stormy seas and miry roads, were frequent. In fact, regular publication could not be attempted until the postal service had reached a stage of development which made it possible to receive the news and distribute the paper at fixed dates.

Some have seen an anticipation of Renaudot's newspaper enterprise in the *Mercure François*, started in 1605, itself modelled on the *Mercurius Gallo-Belgicus*, first published in Cologne in 1594; but these were both of the nature of annuals —forerunners of the *Annual Register* founded by Edmund Burke in 1759 and still continued.

Of the facts of Renaudot's life very few are beyond dispute; during his life he indulged in endless quarrels and controversies, and his many and very bitter enemies found any stick good enough to beat such a cur as they held him to be. He was born at Loudun in Poitou in 1584, though some say 1586; he died in Paris on October 25th, 1653, and was buried at St. Germain l'Auxerrois before the parish altar, the coffin being followed by thirty priests and a large concourse of people. So much is admitted, and it is not disputed that he opened an office in Paris, where inquirers could obtain the address of any citizen and persons in search of employment could register their names; nor that he obtained permission to publish a gazette; nor that he set up a *maison de prêt* or pawnshop. The many "innocentes inventions" of his later life make it easy to believe that he was a clever and precocious boy, who left his native town to study surgery in Paris at a very early age. He did not go through the regular mill there, but in 1606, when 22 (or 20) years of age, went to Montpellier, where the Faculty gave him the degree of M.D. after three months' residence. This was the root of many of the troubles of his later life. What befell Renaudot during the next six years is disputed. According to his own account, he spent several years in travel, studying medicine at various centres, then settled as a physician at Loudun and quickly gained a great reputation throughout Poitou and the neighbouring provinces. His enemies alleged that from Montpellier he went straight back to Loudun, and failing in practice had to become a teacher in a school to keep body and soul together.

However this may be, there seems no doubt that he went to Paris in 1612 to practise as a physician, but again, according to his enemies, had to become a school teacher, eking out a living by taking boarders. He, however, asserted that he was at once appointed a physician to the King with a salary of 800 livres a year. His enemies did not dispute the appointment, but alleged that it was a mere title, easily obtained, and not carrying any salary. Even so, it must have served to regularize his position to some extent, and it is remarkable that a young provincial—he was at most only 28—should have received the title, if it were no more. The explanation given is that he was befriended by Richelieu, then the all-powerful minister, ever ready to attach to himself men of talent and energy, more particularly if they came from his own province of Poitou. This theory seems the more probable in view of the concessions or privileges he received subsequently. He encountered much opposition and appears after a short time to have gone back to Loudun. But he returned to Paris, and in 1630 finally got leave to open his registry office (Bureau d'Adresse) and to start his *Gazette*, the first number of which appeared on May 30th, 1631. In planning and conducting it he is said to have been greatly helped by a famous genealogist, P. Hozier, whose occupation led to his having a very large number of correspondents in France and other countries; Richelieu communicated official documents, and it is even asserted that Louis XIII was an occasional contributor. Two numbers were published weekly, the one entitled *Gazette*, the other *Nouvelles Ordinaires*. In addition, supplements were issued from time to time containing individual narratives and official documents. At the end of the year the various documents were gathered into a volume, and issued with a preface under the general title *Recueil des Gazettes*. A writer in the *Literary Supplement* last year stated that Renaudot had three correspondents in England—one in London, another at Chester for Ireland, and a third at Berwick for Scotland. They wrote weekly letters, and special attention was given to British affairs both in the *Gazette* and the annual *Recueils*. Advertisements were not inserted in the *Gazette*, but were printed in a separate sheet, *Feuilles du Bureau d'Adresse*; this no doubt meant a considerable economy in printer's charges.

In his plan for a registry Renaudot was anticipated in England, where Sir Arthur Gorges and Sir Walter Cope obtained letters patent for a Publique Register for General Commerce in 1611, but as they had neglected to obtain the right to charge fees the scheme was abandoned. It was not until some forty years later that it was revived, and an office of General Accomodation by Addresse was opened in Mr. Fisher's house in King Street, Covent Garden. Henry Robinson, a city merchant and writer on economics, also set up an Office of Addresses and Encounters in Threadneedle Street. In his newspaper enterprises Renaudot had several imitators in England; the *London Gazette*—at first called the *Oxford Gazette*, for the Government had removed there to avoid the plague—appeared first in 1665. At about the same time his advertisement sheet was imitated in London by the issue of a weekly sheet of advertisements called the *City Mercurie*.

It may also be claimed for Renaudot that he was a pioneer of the meetings for scientific discussion which have now come to play so important a part in the progress of knowledge. He invited persons of a scientific or curious turn of mind to assemble at his registry office to discuss subjects announced beforehand in his advertisement sheet, and published reports of what took place. Richelieu founded the French Academy in 1635, and it is possible did not regard this "invention" as innocent.

In spite of all the other irons he had in the fire, Renaudot continued to practise medicine himself, and imported doctors from the University of Montpellier and other provincial universities to assist him and to help in the distribution of certain secret remedies, apparently all of them containing antimony. He established a kind of free clinic for the poor, and announced that the King had given him a site on which he proposed to erect a building for this purpose. According to law only graduates of the University of Paris could practise in that city. In 1566 the prescription of antimony as a drug had been condemned by the highest legal authority in Paris, the Parlement, and the majority of physicians in Paris, led by Guy Patin, still strongly objected to its use. Eventually the Faculty raised an action against Renaudot on various grounds. It has generally been assumed that the opposition of the Faculty to Renaudot and his associates was due to pure prejudice, but it must be admitted that the Faculty had good grounds to object to some of Renaudot's proceedings, and in particular to his combination of medicine and pawnbroking; even as a pawnbroker his hands were not clean. The court by which the case was first heard found against Renaudot and his provincial friends on December 9th, 1643, and forbade them to practise or to hold meetings. Renaudot appealed to the higher court (the Parlement), which not only rejected his appeal (on March 1st, 1644) but suppressed his pawnshop, on the ground that it was injurious to the public interest, and directed all the objects pledged to be returned to the owners; he was allowed to continue his registry office and *Gazette*. In spite of the judgement against him Renaudot continued to practise and to sell his remedies, and lived long enough to see the condemnation of the use of antimony withdrawn. Towards the end of his life he was made historiographer to the King and died at the Louvre in, as has been said, 1653. In one way and another Renaudot must have made a good deal of money, but seems to have kept little of it. Guy Patin alleged that he died in poverty, but others assert that he left a modest fortune.

Of Renaudot's three sons two took to medicine; both had difficulties with the Faculty and had to go to law to obtain admission. Both, however, were admitted during their father's lifetime, though they had to disavow his conduct and

to promise to have nothing to do with the registry office; no formal objection, however, was made to their continuing the *Gazette*, which went on until 1692. The younger of the two, Eusebius, became physician to the Dauphin and Dauphine, and had among his fourteen children a son, also Eusebius, a distinguished theologian and Orientalist, and a member of the French Academy.

## THE HEALTH OF THE SCHOOL CHILD.

THE annual report of the chief medical officer of the Board of Education[1] for 1921 has taken a new form, for this year it is compressed into a hundred pages "on the ground of economy," and the familiar blue cover is missing. The most noteworthy part of the report is a general survey of school medical work and of its meaning.

School medical inspection was established by Act of Parliament in 1907 for two principal reasons: First, it was found that many school children failed to reap advantage of a compulsory system of free national education on account of physical disability, and that the only way to detect its extent and secure prevention or remedy was a system of universal medical inspection. Secondly, as time passed it became evident that a close and vital relation existed between the physical condition of the child and the health and capacity of the whole population. Thus the State was compelled for the sake of the national well-being to deal with the physical condition of the school child. John Colet in the sixteenth century and John Locke in the seventeenth insisted that the physical fitness of the child lay at the foundation of its education, and this was demonstrated in the nineteenth century by Ware, Priestley Smith, Dukes, Warner, and others in this country, and by many workers abroad. At present there is in being a national system of medical inspection and supervision of the school child. The system is not complete or adequate because the obligation of medical supervision has only existed during the last four difficult years; it is not yet being worked perfectly and therefore is not yielding its fullest results; but it is available and it is universal. Medical treatment is but partial in its scope and prevention, and inadequate in degree; and we are still, in many educational areas, lacking such elementary auxiliaries and equipment as sanitary schools, satisfactory playgrounds and open spaces, manual and craft workrooms, school baths, open-air classrooms, and the apparatus and space for adequate physical training.

### *Scope of School Medical Service.*

The fundamental objects of the school medical service are the inspection and supervision, not only of children known or suspected to be weakly or diseased, but of all children attending school. The child is inspected and, if found defective, is referred for treatment, is "followed up," and is subsequently reinspected. In practice this means an annual medical examination of 2½ million children. The total number of medical practitioners engaged (whole or part-time), including specialists for consultation, is now approximately 2,000; besides, there are some 3,000 school nurses partly or wholly occupied in school work. The adequacy of the treatment, the problem of the irresponsible or indifferent parent, and the manner of the provision of treatment are in turn considered in the report. At the present time two facts are evident: first, that the majority of the parents of children in elementary schools who need medical treatment cannot pay a remunerative fee; second, that the person to provide the treatment should whenever practicable be the general or special medical practitioner. Private practitioners cannot, however, afford to work for nothing or for an unremunerative fee, and are often not in a position to deal adequately and in detail, day by day, with the common defects of school children, such as defective vision, carious teeth, adenoids, ringworm, and minor ailments. The remedy is generally held to be the school clinic, with a restriction that it should treat only the kinds of malady which cannot as a rule be dealt with in private practice.

The very success of the clinic, the report states, may prove its hurt; 291 out of 316 authorities have established clinics. It is urged that the authorities should periodically examine their institutions to learn whether their work deals exclusively with the conditions of disease prescribed, and not with maladies outside the schedule; whether there are adequate charges to parents who can pay; whether the accommodation is sufficient, and the medical and nursing staffs are competent.

### *Co-ordination of Public Health with Education Authorities.*

The national aspect which this school work assumes has necessitated the linking-up of the work with the general public health service of the country, hence the co-ordination of the work with the Ministry of Health, provided in the Act of 1919—a feature which is real, notwithstanding that it is inevitable that school children must be considered, inspected, and treated as school denizens, and not at large. So that it comes about that of the 316 school medical officers who are the chief medical officers of the education authority in the different areas, 283 are also the medical officers of health of the sanitary authorities in the same areas thus joining in one medical officer the two services, as they are joined at the Board of Education and the Ministry of Health.

From the initiation of this medical work in the schools a substantial and increasing part in medical treatment has been taken by general and special medical practitioners. For obvious reasons these cannot, as a rule, devote the necessary time to the day by day routine duties of inspection in the schools. But the medical treatment which may be necessitated is performed in large measure by them in hospitals, clinics, or other centres, as well as in private practice in the homes of the children. In this way a very large amount of new medical work has fallen to their lot as a result of the school medical service.

Direct medical treatment of the physical and mental defects of school children is not the only, or indeed the appropriate, method of dealing with some of the disabilities of school age. There must be an educational provision. This is found in the system of special schools for the blind, deaf and dumb, feeble-minded, epileptics, tuberculous, cripples, and in the provision of open-air schools for the feeble of health. These provisions are costly but not wholly unremunerative, for it is found that 50 per cent. of the blind, 80 per cent. of the deaf, 75 per cent. of the cripples, and some 40 per cent. of the mentally defective can be equipped for independent wage-earning. This is no small achievement.

The cost of the school medical service as regards inspection and treatment for the year amounts to £1,300,000; the special schools cost an almost equal sum; these, with the provision for physical training, evening play centres, nursery schools, and the provision of meals bring the total to £2,982,000. The average cost of the strictly medical service is about five shillings for each school child in attendance at the elementary schools.

Special note is made of the desirability for the teaching of hygiene in schools. An illuminating statement is made of the manner in which this teaching may be made of the highest value to the child:

> "There is no subject in the school curriculum which has a more romantic story behind it than the triumphs of the progress of hygiene in recent years, and the story has the advantage of being always new and expanding it can be told in the simplest language, and it is woven into the geography and history of the world."

### *The School Child and Industry.*

In the succeeding sections of the report summaries are given of the work done in the educational areas, with special references to the findings of the school medical officers of some of the areas. In the final section of the report reference is made to the necessity for correlation of the duties of the school medical officer and of the certifying factory surgeon. In the Leicester area some of the medical officers do the double duty, to the greater effectiveness of their work. Dr. Joseph of Warrington, after a special investigation into the matter, concludes that one thing is abundantly manifest, that after all the care and expense bestowed both on the child's education and his physical welfare during school life there is an enormous waste of valuable effort and material through the slipshod manner in which a large proportion of our future citizens are allowed to drift into any form of occupation; and it seems to him very probable that if more attention were paid to this matter there would be in later years less industrial unrest among adults.

Unsuitable employment on the one hand, and the ill health and insufficient physique of an adolescent in relation to his employment on the other, are two fruitful causes of unrest and instability of youth in industry. It is a problem for the solution of which medicine must join hands with common sense, and education with social understanding of industry.

[1] *The Health of the School Child.* Annual Report of the Chief Medical Officer of the Board of Education for the Year 1921. London: H.M. Stationery Office. 1922. (Pp. 103. 1s. 6d. net.)

British Medical Journal.

SATURDAY, OCTOBER 28TH, 1922.

## THE PANEL CONFERENCE.

THE time of the Annual Conference of representatives of Local Medical and Panel Committees, held in London last week, was chiefly occupied in considering the position that is likely to arise when the present contracts between the Ministry of Health and insurance practitioners terminate at the end of next year. The scope of such deliberations is of necessity very wide, and much ground has to be covered before the issues can be narrowed down to practical dimensions. A full report of the Conference is given in the SUPPLEMENT this week. The motions put forward by the Insurance Acts Committee and the amendments thereto served as a basis for discussions which were in effect consultations between the representatives of the Local Medical and Panel Committees and the Insurance Acts Committee on matters of policy likely to be raised in the event of pressure being brought to bear on the medical profession to accept undesirable terms of service in the future.

After agreeing to the system of collective bargaining in dealing with the Government, the alternative policies that might be adopted in case of refusal to serve were critically examined in the light of local information from the various Panel Committee areas. The opinions expressed naturally brought into prominence not only the wide differences of conditions obtaining in various types of practice, but also as great divergencies of conditions in different areas of the same type, such as colliery and industrial districts, and emphasized the complexity of the problem of finding a scheme capable of universal application. The outcome of this debate was an instruction to the Insurance Acts Committee to prepare a revised scheme, which will in due course be circulated to all insurance practitioners, discussed by all Local Medical and Panel Committees, and finally brought before another conference of Local Medical and Panel Committee representatives.

Three other matters of importance seem to call for brief reference here. The question of friendly society control of insurance practitioners did not come before the Conference directly, but it was manifest that opinion on this point was, if possible, stronger than ever. At the same time the desire of the profession to meet these bodies and any other persons interested, with a view to improving the medical service, was clearly demonstrated by the adoption of a motion authorizing the Insurance Acts Committee to promote such a conference. In the second place the Conference generally showed concern for a closer working agreement between the different organized groups of the profession, and more particularly in regard to recent negotiations between the Insurance Acts Committee and the Medical Practitioners' Union. Some disappointment was expressed at failure to report definite progress under this head, but the subject was left on the understanding that consideration of it was proceeding; a definite announcement was promised at as early a date as possible. In order to allow the Insurance Acts Committee a free hand in this matter sanction was given to the increase in the number of representatives on the subcommittee charged with the duty of negotiation. Thirdly, the report to date of the National Insurance Defence Trust Fund was more encouraging than at previous conferences, but it would be idle to pretend that it is what it should be. If the fund is to be an index of the quickening of the mind of the profession to its possible needs in the future, the next six months ought to show a very different rate of augmentation.

On the whole the Conference accomplished a satisfactory amount of preliminary spade work in digging the necessary foundations of an organized plan of campaign against possible future contingencies. There was a noticeable reluctance on the part of some members of the Conference to underestimate the difficulties in their constituencies. However disappointing this may seem at the moment, it is a healthy sign. If the Conference is to fulfil its purpose it must reflect accurately the opinions of the main body of insurance practitioners. The picture must not flatter, but be a plain, "speaking" likeness. Some whose personal enthusiasm and ideals lead them in the excitement of debate to give too rosy a view of their local organization no more help the Conference than those who, having only, as it seems to them, unsatisfactory conditions to report, are tempted to keep silent. Representatives of Local Medical and Panel Committees have now to educate their constituents to face the grave difficulties in front of them; they must measure and develop the spirit of sacrifice, without which no real success is possible; the main body of their constituents must learn that the best central organization can be paralysed by apathy and inactivity at the periphery.

## THE ANNUAL REPORT OF THE BOARD OF CONTROL.

No longer can the problem of mental disorder in general and the welfare of the certified insane in particular be regarded as the exclusive concern of those who are actually engaged in the care of the mentally unsound and the management of asylums; the problem is one of great social importance, and it thus becomes the concern of the community as a whole. This fact is now being more generally recognized, and for this reason the Report of the Board of Control, which is responsible for the supervision of 123,714 notified insane and 13,810 mentally defective patients, tends to receive more attention from the general public at the present time than was formerly the case. It is well that it should be so, because the Report contains a number of interesting facts and comments, and it shows the magnitude of the work for which the Board is responsible and the difficulties with which it is confronted in endeavouring to carry it out satisfactorily.

The prefatory note describes the year 1921 as having been one of great administrative difficulty. The unfavourable financial conditions prevailing throughout the country rendered it necessary to adopt a policy of the strictest economy, with the result that many matters important for the treatment of asylum patients and the conditions under which they live had to be postponed. It is, perhaps, not the asylums, however, which have suffered the most from the existing financial conditions. Rather is it the development of work under the Mental Deficiency Act which has been most retarded owing to the need for economy. Fortunately, as the Report shows, the Geddes Committee recognized the work of the Board of Control in relation to mental deficiency as essential to the physical and moral health of the nation, and refrained from suggesting any reduction in the vote. Certain concessions have been made for 1922–23 which it is hoped will enable local authorities to deal with new "urgent" cases which may arise, but the whole position in regard to mental defectives is most unsatisfactory, and the problem they create cannot be effectively dealt with under present financial conditions. In areas where ascertainment has been

thoroughly carried out it is found that the number of cases requiring institutional care is far in excess of the number for whom an Exchequer grant is made. Where branch associations of the Central Association for Mental Welfare have been established valuable work is being done in spite of adverse financial conditions, and we are glad to observe that the Report includes a well-deserved tribute to the work of this organization. By providing for the supervision of cases for whom institutional care is not available or not desirable, by organizing occupation centres, and supplementing the activities of the statutory committees, the Association has carried out work of incalculable value to the community.

On January 1st, 1922, the number of notified insane in England and Wales showed an increase of 3,370 on that recorded on January 1st, 1921. The main factor in the increase during 1921 was the very low number of deaths in asylums. The death rate calculated on the daily average number resident was 8.37 per cent., or 0.27 lower than in the preceding year, which was the lowest previously recorded. The causes of death are divided into primary and secondary or contributory. The number of deaths from tuberculosis amounted to 1,497. The rate per 1,000 reckoned on the total incidence was 15.6, as compared with 13.6 for primary cases only, the number being increased by the addition of "secondary" cases from 1,304 to 1,497. Dysentery, from which 183 deaths were returned as the "primary" cause, was actually present in 237 cases, these therefore representing the total incidence of death from these causes. A careful analysis of the returns furnished of the occurrence of dysentery and diarrhoea in the county and borough asylums is included in the Report, and an interesting record of researches now in progress at a number of asylums indicates that every attempt is being made to lessen the incidence of dysentery in these institutions.

The resumption of full medical records, which had largely been suspended during the war, has now allowed of a return to the pre-war practice; and the tables dealing with the "Causes of Insanity" for the year 1920 have been duly prepared and filed at the office of the Board for reference. A summary of causes and associated factors in insanity stated that insane heredity was found in 15.4 per cent. of males and 22.4 per cent. of females, both less than that discovered in the years 1909-13. A psychopathic family history is, however, probably present in a much greater proportion of insane cases than these figures indicate. The sources of error are manifold. In some cases no history is ascertainable, and in others it is concealed by the relatives; moreover, some medical officers take more trouble to obtain an accurate history than do others. In spite of the fact that, as far as these tables are concerned, prolonged mental stress appears to be the most frequent causal factor in the production of insanity, we fear that the hereditary factor has a far greater influence than the figures indicate. It is of sociological interest to observe the decline in the share taken by alcoholism and inebriety in the etiology of insanity, which in 1920 yielded a rate amongst females only one-half that in 1909–13, and in males not much above one-half. The value of some of the statistics is diminished on account of the method of classification adopted in asylums. The Board recognizes that a more modern nomenclature of the forms of insanity is necessary, and it is much to be desired that one more in harmony with present-day psychiatry will before long be adopted.

Adverse comments are made in the Report on the tendency of some Poor Law institutions to retain cases of acute insanity for whose care and attention mental hospitals have been especially provided. It is pointed out that the wards of a Poor Law institution are not well adapted for acute mental cases, and that it was never intended that such cases should remain in them for more than a short period of observation. The Board considers that even if the law remains unchanged the principle which obtains in certain districts of sending all cases of mental disorder to the mental hospital through the Poor Law institution is to be deprecated, and goes on to observe that, although it is possible in some cases to avoid the so-called stigma of certification, direct admission to the mental hospital is the wisest course. Many of the patients now detained in Poor Law institutions, where expert treatment is impossible, are essentially those for whom it is necessary to amend the existing lunacy laws, so that they may be able to obtain the most appropriate and up-to-date treatment for a period without certification.

The Report includes some important recommendations in regard to the question of voluntary boarders in registered hospitals and licensed houses. As a result of certain complaints which have been made it is suggested that a printed notice setting out the main facts should be handed to the boarder on his arrival, in order that he should be under no misconception as to his position, and should be fully aware of his right to leave on giving notice. Another important recommendation is made in regard to the certification of the voluntary boarder—namely, that he should never be placed under certificates while in residence, unless such a course be absolutely necessary for the safety of the patient or for the protection of the public. We are in entire agreement with these suggestions, and feel that if, as is most desirable, the voluntary system should be extended to the borough and county mental hospitals similar procedures should be carried out. It is only by adopting an attitude of complete frankness towards the patient who voluntarily places himself under treatment that the mental hospitals of the future will succeed in gaining the complete confidence of the public.

## THE "VICTORY": 1805–1922.

**Admiral of the Fleet Sir F. C. Doveton Sturdee is making an appeal on behalf of the Society for Nautical Research for funds to save the *Victory*, and to restore her, so far as money will permit, to her condition at Trafalgar. The Admiralty has moved the *Victory* into a dock consecrated to her sole use and has supported her sound timbers by an iron cradle, but has no funds to do more. But more is necessary if she is to be maintained as a reminder of the great days of the British Navy. She was laid down in 1759, and before Trafalgar had seen much service, for she was the flagship of Sir John Jervis when, with 15 ships against 27, he won the great victory of St. Vincent. She was the flagship of Lord Hood when he occupied Toulon and conquered Corsica; of Lord Howe when he relieved Gibraltar after three years of siege, and also of Keppel and Kempenfelt. Her surgeon at Trafalgar was Beatty, afterwards Sir William Beatty, who had joined on December 14th, 1804. He had as assistant surgeons Smith and Westemberg, and after the battle was joined by Surgeon Britton, of H.M.S. *Pickle*. Beatty's carefully compiled journal states that on the *Victory* prior to the battle there were five deaths and two hospital cases. Of the deaths one was from fever, three from consumption, and one from injury to the spine. The two patients in hospital were both suffering from consumption. At the battle there were 102 casualties, with five deaths, besides that of Lord Nelson. Five of the worst cases were left at Gibraltar, and five had not recovered from their wounds when the vessel was put out of commission at Chatham. All the others recovered on board. The five deaths were Midshipman Alexander Palmer, shot through the thigh, who died of tetanus on October 28th; Henry Cranswell, seaman, who sustained multiple contused wounds and simple fracture of the tibia and fibula, and died on October 26th from gangrene; Joseph Gordon, seaman, who underwent amputation of the thigh, and died after a sudden spasm on October 27th; William Brown, seaman, wounded by grapeshot through the lower part of the left**

thorax, who died on October 23rd of internal haemorrhage; and Richard Jewell, seaman, who underwent amputation of the thigh through the great trochanter on October 23rd and died shortly after. Beatty, in his *Authentic Narrative of the Death of Lord Nelson*, relates how on the morning of October 21st Lord Nelson fastened on his coat besides the Orders of St. Ferdinand, the Crescent, and St. Joachim, the Star of the Order of the Bath over his heart. The *Victory* had been laid alongside the *Redoubtable*, so that it was almost possible to leap from one to the other, and upon the mizzen-top of the *Redoubtable* were posted two seamen with muskets. Lord Nelson was standing on the quarter-deck talking to his captain, Sir Charles Hardy—his secretary, Mr. Scot, had already been shot beside him, and some of his blood soiled Lord Nelson's coat. The distance from the mizzen-top of the *Redoubtable* was not more than fifteen yards: one of the French seamen fired and hit Lord Nelson. The ball entered just below the left epaulette, fracturing the acromion, and, descending obliquely into the thorax, fractured the second and third ribs; it passed through the left side of the lung, dividing an artery; it entered the left side of the spine, between the sixth and seventh dorsal vertebrae, fractured the left transverse process of the sixth, and the right transverse process of the seventh vertebrae, wounded the spinal cord, and, passing through the muscles of the back, lodged about two inches below the inferior angle of the right scapula, where it was found with a portion of gold lace, a piece of the epaulette. Lord Nelson recognized that he had been shot through the spine, and that he had lost sensation and movement below the level of the injury. He suffered greatly from thirst and difficulty in breathing, owing to haemorrhage into the pleura, which he bore with exemplary fortitude until he died, two and three-quarter hours after being wounded. As there were no embalming materials on board, his body was placed in a cask filled with brandy, which was changed twice on the voyage home. On arrival the viscera were removed, when all the organs were found free from disease and deterioration. Owing to inherited gout he had not taken meat or wine for two years. At the same time Beatty examined the injury and removed the ball. Beatty, when he wrote his book (1807), styled himself Physician to the Fleet. In 1817 he became M.D. of St. Andrews, and was admitted to the order of Licentiates as it then existed of the Royal College of Physicians of London. In 1818 he was elected F.R.S. In 1822 he became resident physician to Greenwich Hospital; he was knighted by King William IV in 1831. He retired in 1840; he died unmarried in 1842, and was buried in Kensal Green Cemetery, but the spot cannot be identified. We are indebted for most of the facts here stated to a paper by Dr. S. D. Clippingdale, published in the *Journal of the Royal Naval Medical Service* in 1915.

## THE HARVEIAN COMMEMORATION.

In accordance with custom and in compliance with Harvey's instructions in the indenture by which he founded the Harveian Festival, a dinner was held within the Royal College of Physicians of London on the evening of St. Luke's Day, when the Oration, published last week, was delivered. The guests were the Bishop of Worcester, Assistant Chaplain-General to the Army during the war (1916–19); Sir Aston Webb, K.C.V.O., President of the Royal Academy; Sir Anthony Bowlby, K.C.B., President of the Royal College of Surgeons of England; Sir Robert Hill, K.C.B., Medical Director-General R.N.; Mr. H. J. Waring, F.R.C.S., Vice-Chancellor of the University of London; Sir Stanley Leathes, K.C.B., First Civil Service Commissioner; Mr. T. J. C. Tomlin, K.C., senior standing counsel to the College; Sir John Thomson-Walker, F.R.C.S.; the Master of St. John's College, Cambridge (Dr. R. F. Scott), and the Master of Gonville and Caius College, Cambridge (Sir Hugh Kerr Anderson, M.D.). The President, in proposing the toast of "The Guests," recalled that St. John's was the College of Linacre, the founder of the College of Physicians, and Caius the college of Harvey. The health of the Harveian Orator was proposed in eloquent terms by the senior censor, Dr. Raymond Crawfurd, and briefly acknowledged by Dr. Chaplin.

## THE MOTOR SHOW.

The International Passenger Car Show, commonly called the Motor Show, will open on Friday next, after a private view on the previous day. We propose to publish in our issue of next week (November 4th) an article by Mr. Massac Buist describing the show, at which, as he told us last week, this autumn's products alone will, with a few exceptions, be exhibited. This show is the principal event in the motor world, when manufacturers submit their newest types of cars and accessories to the judgement of the critic and for the instruction of the public. Owing to the great demand for space the show is to be divided, part of the exhibits being displayed at Olympia, Kensington, and part at the White City, Shepherd's Bush. The one ticket admits to both portions, and arrangements have been made to convey visitors from the one to the other. During the last few weeks and this week our advertisement columns have contained a number of notices by leading manufacturers, the perusal of which will have assisted readers to appreciate some of the new developments; they will be more fully described in the article to be published next week. The show will close on Saturday, November 11th.

## PROFESSOR JOHN CLELAND, M.D., LL.D., F.R.S.

Former students of Professor John Cleland in the University of Glasgow will be interested to read a letter received by Professor James Battersby, one of the honorary secretaries of the Section of Anatomy at the Annual Meeting of the British Medical Association in Glasgow. The proceedings of this Section are reported in the Journal this week. At the opening of the meeting, on the suggestion of the President Professor Alexander Macphail, a message was sent to Professsor Cleland (now in his 88th year) expressing the esteem, high regard, and affection in which this veteran anatomist is held. His acknowledgement runs: "Please convey my most grateful thanks and hearty good wishes to the Anatomy Section of the British Medical Association. I can assure them that their kind messages are deeply appreciated by me. To those who are old students of my own I would add my most affectionate remembrances and appreciation of their regard."

## THE COMMERCIAL DISINFECTION OF WOOL AND HAIR.

The Advisory Committee on Anthrax, set up by the International Labour Organization, will meet in London on December 5th, under the chairmanship of Sir William Middlebrook, M.P. The Governments of Belgium, France, Germany, India, Italy, Japan, South Africa, Spain, and Sweden will be represented. The International Labour Organization, though maintained out of the funds of the League, was established not by the covenant but by the special section of the peace treaties; Germany, for example, has been a member of the Organization from the first. The United States has not joined, and will not be officially represented at the meeting in London, but it is sending the chief of its Biochemic Division of the Bureau of Animal Industry to act in an unofficial capacity. The original proposal of the International Labour Organization was for disinfection of wool at the ports, under the supervision of an international commission. It was objected, however, that certain processes of disinfection were of doubtful efficacy and might have injurious effects on the quality of the wool, and that anthrax spores were frequently carried in hides and skins, which, strangely enough, had not been included in the scope of the proposals. The committee which is to meet in London is to examine the whole question and make proposals. An illustrated account of the fine

station for the disinfection of wool and hair erected on a site adjoining the wool warehouses of the Mersey Docks and Harbour Board of Liverpool was published in this JOURNAL of December 3rd, 1921 (p. 952).

## THE GENERAL PRACTITIONER'S SHARE IN MEDICAL RESEARCH.

THE latest convert to Sir James Mackenzie's teaching that the greatest need of medicine to-day is to seek out the beginnings of disease is Lord Riddell, who has given a very understanding account of the doctrine in *John o' London's Weekly* (October 21st). The matter, he says, may be put "in a nutshell. The ordinary method of investigation is to begin with the disease and work back to find the cause. Sir James says that the proper method is to watch for the cause and work up to the disease. Thus, instead of travelling from B (the disease) to A (the cause), you must reverse the order and travel from A (the cause) to B (the disease). This sounds practical common sense." But is not this to ask of medicine more than is asked of even the exacter sciences? Whether it be the chemist observing an unexpected precipitate, or an astronomer measuring the variability of a star, the new phenomenon must be accurately recorded and verified before its explanation is sought, the observation of the effect must precede the search for its cause, the existence of a problem must come before its solution can be considered. These are commonplaces to which we have no doubt Sir James Mackenzie would subscribe, but their application to medicine presents special difficulties. It might be a very good thing if everyone went periodically to his doctor to be vetted, but, as things are, few go until they feel ill, and, as experience proves, if the disease be chronic, only too often when the mischief is done. But this is not always the case, and the reply of the St. Andrews school will be something to this effect: "Granted all that, there are still a good many instances in which people seek advice for some slight and, as they hope, transient feeling of indisposition, or because, without any definite symptoms they can recognize, they feel below par: that may give a chance to investigate disease before the occurrence of any structural change in any organ. Or again, an acute febrile attack, such as may be caused by catarrh of the upper respiratory passages, of no great importance in itself, may give the doctor his opportunity." If this be so, then the application of what we may call the St. Andrews doctrine falls to the general practitioner, who alone can follow in Sir James Mackenzie's footsteps. He is in the best position to observe the beginnings of disease, and he alone can follow up patients and observe the outcome of complaints. The task as we have briefly stated it is very wide, and there is the risk of a diffusion of energy, the besetting difficulty of the general practitioner who desires to work in the scientific spirit. All difficulties, however, may be overcome if the public learns to take sufficient interest, and it is significant that a journalist so experienced as Lord Riddell should, by publishing the article to which we are referring, show that he believes the public can be interested.

## VIRUS DISEASES IN PLANTS AND ANIMALS.

AT a meeting of the Association of Economic Biologists on October 13th at South Kensington a discussion took place on virus diseases in plants and in animals and man. Dr. E. J. Butler, of the Imperial Bureau of Mycology, who spoke on the subject in relation to plants, said that the first demonstration that disease could be caused by a filtrable virus was given by Iwanowski in 1892. This related to the mosaic disease of tobacco, a disease now known in nearly a hundred species of plants. Other diseases, such as peach-yellows, were probably caused by similar agents, though the filtered juice was not infective. The chief method of transmission of virus diseases in plants was by insects, and infection might be hereditary in the insect transmitter. Mere contact would not cause infection. The causal agents were believed to be living organisms, and large amoebiform corpuscles or smaller granules had been found by several recent investigators in infected cells. The subject of virus diseases in animals and man was dealt with by Dr. J. A. Arkwright, of the Lister Institute (now, happily, recovered from typhus), who said that the chief points of interest common to plant and animal virus diseases concerned the nature and properties of the virus; the means of transmission—that is to say, the "carriers" and insect vectors; the measures of prevention, such as breeding or selection, and isolation or destruction; and perhaps also the concentration of the virus in certain special tissue cells. About fifty animal virus diseases had been described. They might be placed, roughly, in four categories. There were those in which the virus was visible, not filtrable, and not cultivated; those in which it was probably visible, filtrable, and cultivated; those in which it was possibly in some cases visible in the tissues, filtrable, and not cultivated; and, finally, those in which it was filtrable and very resistant. An example of the first of these categories was Rickettsia; of the second pleuro-pneumonia of cattle and poliomyelitis; in the third foot-and-mouth disease and vaccinia; and in the fourth fowl-pox and infectious pneumonia of horses. In their general properties most of the viruses did not differ much from bacteria, though some showed great resistance to drying, glycerin, and heat. The smallest clearly visible and largest filtrable particle were of the same order of size—about 0.2 micron—and the differentiation of colloidal particles of this order by means of the microscope was often extremely difficult and required attention rather to the arrangement and range of size and shape than to the appearance of the individual particles. Dr. Arkwright regarded it as theoretically possible on certain analogies that an enzyme might be the cause of infectious disease.

## "KAFFIR COW-POX."

THE *Times* of October 17th published the following brief news note: "Kaffir cow-pox has reappeared in some of the northern towns of Jamaica. It has assumed a more serious aspect than the outbreak of last year, several deaths having been recorded." No doubt this refers to mild or modified small-pox, such as has occurred in many parts of the world in recent years, but it would require local knowledge to explain how the term "Kaffir" reached Jamaica in that connexion. In a letter which we published on August 12th (p. 283) Dr. R. U. Moffat stated that the name "Kaffir pox" was brought into use for small-pox in Kimberley forty years ago because the place then depended for food and fuel on bullock-wagon transport, and was threatened with starvation owing to the alarm of small-pox stopping the traffic. As we have urged, and as the Ministry of Health has advocated in a leaflet on mild small-pox—commented on by us on August 19th (p. 316)—where an outbreak is regarded as variolous it ought to be called small-pox qualified by an adjective such as mild or modified. Terms like alastrim, amaas, Kaffir, and so forth only lead to confusion. It may be pointed out that the statement in the *Times* note about Kaffir cow-pox being more severe in type in Jamaica than in the previous year rather agrees with an observation made by Dr. Monckton Copeman in his report on such an outbreak in England, published by the Ministry of Health in its volume for 1919–20. In the course of his early visits Dr. Copeman had expressed the opinion that "as the disease gradually became more acclimatized" it would tend to "approach more nearly to the type of small-pox as ordinarily met with in this country." That is what happened; in the later cases the severity of the symptoms was markedly greater. No such development, however, is recorded in many outbreaks, but in our last issue (p. 775) Dr. Wanklyn gave a warning as to the high fatality rate of the disease in and around London, notwithstanding that the outbreak included cases so mild as to be mistaken for chicken-pox. To-day we publish (p. 819) Dr. Hamer's report

to the London County Council on groups of cases in the outbreak. He points out the striking contrast between the 700 cases with one death in the Midlands and the North during the present year, and the five deaths in 19 cases in and around London between July 26th and October 13th. He emphasizes also Dr. Wanklyn's warning as to the need for prompt recognition at the earliest possible stage of the disease. The warning should be heeded. We have had comparatively little small-pox, and hardly any of it severe, for years past, but it may come at any time like a thief in the night, and may readily spread in a population now so largely unprotected against its assault.

## FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

At the fourth congress of the Far Eastern Association of Tropical Medicine which was held at Weltevreden, Java, in August, 1921, a proposal was made on behalf of the Governments of the Straits Settlements and Federated Malay States by their delegate, Dr. A. E. Horn, that the next meeting of the Association should be held in Malaya in 1923, was adopted and Dr. A. E. Horn was chosen president; Drs. A. L. Hoops and R. Dowden were elected vice-presidents for the Straits Settlements and Federated Malay States respectively; and Dr. Scharff honorary secretary for Malaya. It has been decided to hold the meeting at Singapore from September 3rd to 17th, 1923. The first week of this period will be devoted to scientific discussions, and the following week to excursions to points of medical and sanitary interest throughout Malaya. The Governments of the Straits Settlements and Federated Malay States recognize the important work done by the Association and are contributing a considerable sum towards the expenses. The object is to promote the science and art of tropical medicine in the Far East. For this purpose the Association endeavours to unite into one compact organization the medical profession of the Far East, for the growth and diffusion of medical knowledge; to promote friendly international intercourse among physicians; to elevate the standard of medical education; to enlighten and direct public opinion in regard to the problems of hygiene; to form habits which may conduce to the prevention of disease among the native population; and to present to the world the results of such scientific observations. The membership of the Association is open to the members of all duly constituted, regularly organized medical societies within the field of the organization, and all medical officials in the civil, military, naval, or other organized services of Governments within their territories. Those who wish to submit papers are asked to communicate as soon as possible with the honorary secretary.

## "THE NEW MEAL POKE."

It is nearly twenty years since a volume called the *Meal Poke* was published to help a students' bazaar in Dundee. The *New Meal Poke* has now been issued with a similar object; in this instance it is to help a bazaar to be held, in the words of the Chancellor, Earl Haig, to obtain money "to provide more suitable opportunities for our Dundee students to obtain proper health-giving relaxation from the classroom and study. The rapid growth in the number of students at the College makes the matter an urgent one." The new volume has been prepared for the Students' Representative Council by a small committee, and we observe that the address to the friendly reader on behalf of the Dundee Committee of the Students' Representative Council is signed by Dr. R. C. Buist and Mr. E. O'Brien. The name "meal poke" is, if we may say so without presumption, something of a misnomer, for a poke of meal consists only of one sort of thing—meal—whereas this poke contains many sorts of things, from a poem by Mr. Hardy to an essay by Mr. E. V. Lucas, from a reminiscence by Sir J. M. Barrie to a song by Dr. David Rorie, about which we can venture no opinion until we have heard him sing it. Many of the other contributions to the text attain a high order of merit; there are several translations, one from the Provençal of Count William of Poitiers, by Professor A. Blyth Webster, which gives some idea to those unacquainted with that dialect of what was accomplished in it. The contributions, indeed, are evidence of how well the Muses are cherished at Dundee and St. Andrews, and the illustrations also reach a high order of merit; Dr. R. C. Buist has written a sonnet for the frontispiece—"Lifelinks," by Alec Grieve. The volume has been produced in excellent style by Messrs. George E. Findlay, Victoria Printing Works, 6, Victoria Road, Dundee, and the net price is half a crown. The postage would seem to be 4½d. There is also an edition de luxe, limited to 200 copies, but the price of it is not stated.

## THE NEW MINISTRY.

The resignation of Mr. Lloyd George's Government having been due to the action of the Conservative party the new Ministry, which took office on October 24th, is purely Conservative, but of the 17 principal members 9 were in the last Ministry. The immediate duty of Mr. Bonar Law's Cabinet will be to get the new Parliament together in time to pass the Irish Bill, and as the relative strength with which the several parties will return from the country can less than ever be forecast, there is a certain unreality in discussing either its programme or its members. With regard to the first, Mr. Bonar Law has said that he will be guided by the belief that "what the country needs is tranquillity, freedom from adventures and commitments, both at home and abroad." Sir Arthur Griffith-Boscawen, who was Minister of Agriculture in the last administration, becomes Minister of Health in succession to Sir Alfred Mond, who replaced Dr. Addison early last year. Sir Alfred Mond has done good work at the Ministry of Health, and in particular showed sound judgement in meeting the demands for economy, and courage in resisting proposals to hamper important health services. In taking leave of the Ministry Sir Alfred Mond circulated the following note for the information of all officers of the Ministry: "On leaving the Ministry of Health I desire to express my high appreciation of the work of the staff. The questions with which they have to deal touch the lives of the people at more points than the work of any other Department of State, and are of the greatest social importance. There is no warmer praise than to say of them, as I do, that their efficiency and sense of duty is on a level with the high ideals underlying the work of the Ministry. I wish you to convey to them my gratitude for their loyalty to me in work which was very near my heart, and my hope that my successors will be as ably supported in carrying it on under happier financial auspices than I enjoyed."

The Schorstein memorial lecture at the London Hospital Medical College will be delivered by Dr. Percy Kidd in the anatomical theatre of the College on Wednesday, November 8th, at 4 p.m. The subject selected for the lecture is "Forty years in the history of tuberculosis."

The Huxley lecture on evolutionary tendencies in man's body will be given in the large lecture theatre of the Charing Cross Hospital Medical School by Sir Arthur Keith, M.D., F.R.S., on Wednesday, November 8th, at 3 p.m. The chair will be taken by Dr. William Hunter, C.B. Admission is free, without ticket.

The annual medical service of the Guild of St. Luke was held in St. Paul's Cathedral on the evening of St. Luke's Day, Wednesday, October 18th. Prayers were intoned by the Rev. W. J. Foxwell, and the musical portion of the service was rendered by the organist and choir of St. Mary Abbott's, Kensington. A new tune, composed by the Rev. H. Kirkland-Whittaker, M.D., secretary of the Guild, was used for the hymn, "Thou to whom the sick and dying." Dr. St. Aubyn-Farrer and the Rev. Dr. Kirkland-Whittaker read the first and second lessons respectively. After the sermon by the Rev. Lord Victor Seymour there was a procession.

# WINTERING ABROAD.

## THE FRENCH RIVIERA.

To winter abroad on the ground of health is not an entirely modern practice. To do so seems to have been by no means a rare prescription nearly or quite a century ago, among places then in vogue being Montpellier, not far from the western end of the Riviera, and Florence, close to the eastern end.

Their accommodation for strangers was considered satisfactory, and their climates more favourable to chest cases than those of English cities and villages. Also as the times went—travellers in those days were bolder and less exacting than now—they were considered to be easily reached.

Later on they lost their reputation in this connexion, but whether from recognition of their essential lack of climatic virtue, or owing to the opening up of the Riviera, it is difficult to say. In any case soon after the middle of last century the stretch of coast from Toulon to Genoa began to be identified in medical minds with "Wintering Abroad," and now for many years past the names of the principal towns on the "Côte d'Azur" have been nearly as familiar to frequenters of English railway stations as those of Blackpool and Brighton.

In Roman and mediaeval days nearly all the existing Riviera health resorts were places of some importance, but when their present rôle commenced they were, with the exception of Toulon and Nice, little more than a string of fishing villages. Their development from this into their present condition was slow, and in some instances due to more or less fortuitous circumstances. Hyères, for instance—about the first place to become well known—owed its rise no doubt to its relative accessibility, it being close to Toulon, which was itself for some little time popular in this connexion, and always a naval station of importance. Nice, again, which came into the picture even earlier in the development of the Riviera as a whole, had the advantage of being already a cheerful garrison town. The name of the principal part of its sea front—the Promenade des Anglais—would in many places be merely a compliment, but in Nice it marks the quarter in which the English colony first established itself.

In other cases the energizing factor was some accidental circumstance, such as that a particular view or site in its neighbourhood charmed some "personage," who thereon purchased ground, built himself a villa, and became a kind of collecting centre. This term "villa," it should be noted, is now occasionally used on the Riviera as it is in a suburb of London, but for the most part it preserves its original signification and indicates a large house surrounded by more or less extensive ornamental grounds.

Finally, there are towns that owe their rise to some medical man having deliberately picked them out as ideal places of residence for invalids, and his having "written them up" accordingly. The most notable instance of this is Mentone, which has recognized the fact by erecting a monument Henry Bennett.

### THE LIE OF THE LAND.

The term "Riviera" (meaning "bank" or "shore") was formerly the correct geographical description of the northern coast of the Mediterranean from Nice to Spezia. Nowadays it is a popular phrase rather than an official term, and is often made to cover the whole coast between Spain and the peninsular portion of Italy. People less loose in their diction, and more practical in their ideas, speak of the Western Riviera, meaning all places between Cannes and Toulon (both included), but nothing nearer the Spanish coast; the Central Riviera, meaning the coast from Nice to Mentone; and the Eastern Riviera, meaning all places from the Italian frontier to a little beyond Genoa.*

It is a coast with very numerous bays, but, since none of these is deep and the general run of the coast is from east to west, there is no great difference in the latitude of any of the towns and villages thereon. They are also alike in the fact that if the Mediterranean Sea could be emptied out it would be seen that they all lay on a ledge about one-third of the way up the side of an enormously deep valley; likewise that this ledge, though always at much the same height above the bottom of the valley, varied a good deal in its breadth, and also in its level, in relation to the side of the valley above it. Similarly, if the Mediterranean, instead of being emptied out, were one day deepened by a few hundred feet, it would be found that, though the present bays still existed, they had been broken up at frequent intervals by creeks running right into the side of the valley.

Stress is laid on these facts because they account for the difference of the climate of the Riviera as a whole from that of any other southern health resort, and they are also of material importance when a preliminary choice has to be made between one place and another within its borders, either for treatment or residential purposes. Indeed, anyone who bears them in mind in relation to any town specially commended to him can, with the help of a large-scale map, decide for himself how far it is likely to meet his desires.

### CHEATING THE CALENDAR.

The desires of those who imitate the swallows no doubt vary, but the primary aim is usually to cut winter out of the calendar. It is a common belief that this can be done by merely going south; or, in other words, that wintry conditions are simply a question of latitude. This is a mistake. Winter is more or less unpleasantly perceptible far below the limits of Southern Europe; indeed, as far south as beyond the Atlas Mountains in Northern Africa. In this hemisphere only within a few degrees of the equator is winter practically non-existent.

No doubt the Riviera owes something to its latitude, and a considerable something to factors such as its southern exposure, its proximity to the Mediterranean Sea, and the clarity of its atmosphere. But if this were all its climate would not materially differ from that of a host of places much farther south, or even from that of a considerable number in the United Kingdom itself; also the Riviera would have an only minor advantage over the two places mentioned at the beginning of this article, which lie almost precisely in the same latitude as Nice and Mentone.

What spells all the difference are the circumstances that have already been emphasized as points to remember—namely, that the Riviera lies practically on a ledge of ground on the side of a deep valley. As the length of the valley runs east and west its side above the ledge protects the latter more or less completely from the north. The narrower the ledge at the site of any given town or habitation, the lower its relative position to the bulwark above it, and the less the bulwark is cleft, the more hopeful is the prospect of him or her who aims at cutting out the winter.

The side of the valley at its Central Riviera and Eastern Riviera portion is formed by the Alps. To many people the latter term means nothing but Switzerland, but the Alps really run so much farther south, and without any very considerable diminution of their height, that in many places they form the very edge of the Mediterranean Sea.

The side of the valley at its other end—that is, on the Western Riviera—is formed mainly by what are known as the Esterel and Maure Mountains. Their geological connexions are not well defined; possibly they are an outcrop of the Cevennes or even of the great central Massif of France. They are lower than the Alps, and extend over a relatively very narrow band of country; consequently they are somewhat less effectual as bulwarks.

The width of the ledge varies constantly from end to end. Throughout it is of such limits that there is a front and a back to all towns and villages, part of the houses lying nearly at sea-level, and others either on foothills or on mountain spurs. In some areas it is so narrow that the mountains nearly push the habitations into the sea.

The clefts that have been mentioned always let through a certain amount of northerly air, as they form subsidiary valleys at right angles to the sea. In a minor degree they account for the climatic differences between town and town, and fully for the fact that on any given day one quarter of a town may be materially colder than another. This is why wise people on the Riviera always go about armed with a wrap of some kind. A further reason for the same precaution is that owing to the heat of the sun promenaders may feel cold if they have to go home along a street shaded by high houses on both sides.

But the most important effect of the topography of the Riviera still remains to be mentioned. Despite the fact that it lies on the edge of the sea, the climate of the Riviera is to

*Amongst other descriptions of the Riviera are Riviera levante and Riviera ponente; also the "French Riviera" and the "Italian Riviera." The two former terms are now quite out of date, but at one time were official. They mean respectively the Riviera from Nice to Genoa (Riviera ponente) and the Riviera from Genoa to Spezia (levante). The other two terms explain themselves—the French Riviera covering everything from Toulon to Mentone, and the Italian Riviera all Riviera resorts under Italian jurisdiction.

be regarded as stimulative rather than as sedative. Its air, in short, is usually not sea air but dry mountain air.

So many authorities have discussed the meteorology of the Riviera that it is impossible to say who first pointed out this fact, but it is perhaps Samways of Mentone who has done most towards clearing it up.* To summarize his observations briefly, it may be said that the Riviera receives most of its air much as does a room from an overhead ventilator. The mountains above the ledge deflect all wind from Northern Europe into the upper atmosphere; thence if it has been moving only slowly it drops to sea-level again as wind, at a varying distance from the point of deflection—that is to say, from the top of the bulwark. This is why the sea is often rough when there is no wind at all on shore, and also one reason why the atmospheric conditions at the front and in the high-lying areas of any given town are commonly appreciably different. But of course air does not reach the Riviera solely from the north. Easterly and westerly winds blow with fair frequency, and the extent to which they are felt varies in each place according to the degree to which the place is protected by spurs of mountain running seawards. The wind from the east is not a cold wind, but any marked wind on the Riviera is resented, and the westerly wind, locally known as the "mistral," certainly has something of the irritating character of an east wind in the United Kingdom, though in other ways it is its converse.

The effect of all the various factors to which reference has been made could be reduced to figures, but it is better to refrain. To many people meteorological returns are Chinese, and even to those who deem themselves competent translators they are apt to be misleading unless unusually complete and studied with great care. It is so easy to forget that in respect of their reflection on human comfort and on human well-being the facts represented by meteorological data are much less important than are the interrelations of those facts. Even if unconsciously anyone who has ever spent any time on a snowclad mountain must have become aware of this. Consequently everything that it is proposed to say on the subject of the Riviera climate other than has already been stated will be found in the paragraph headed "The Season."

One point may, however, conveniently be mentioned here. The meteorological data of the Riviera might easily be taken to spell dust, but in the writer's experience dust is not one of the troubles of the Riviera so far as its visitors are concerned. Wherever motor traffic is heavy there is bound to be more or less dust, so that the Riviera cannot be entirely free from it. But only on main roads is motor traffic ever heavy, and in the neighbourhood of towns on the Riviera which have recovered from the war road surfaces are kept well tarred and in the towns themselves free road watering is practised. Likewise main roads are frequented only by people in carriages of one sort or another, and as a general rule the hotels and other buildings used by visitors are isolated from roads of all kinds by gardens.

### Choosing a Locality.

Practically every dweller on the Riviera, whether his stay be short or long, becomes either a keen advocate or a depreciator of the place of his stay. Likewise the number of possible places of residence is very large. There are at least twenty-five recognized resorts if all three Rivieras be taken together, in addition to many others which do not seek fame, though often they equally well deserve it.

For this reason, as also from a desire to be perfectly neutral, it is intended to leave the task of differentiating between places to those individually interested in the question. Still, certain general observations are legitimate and will be helpful. The most completely developed towns, as also the largest, are Cannes, Nice, Monte Carlo, Mentone, and San Remo.

Cannes, though less well protected than some other places, has always been specially favoured by persons of everywhere recognized rank. It is becoming more democratic, but is still less of a town than a collection of scattered villas. Nice is the metropolis of the Riviera, and a place which in its very long history has never fallen from the position of a town of importance. It is specially favoured by the French and the Americans, and though by no means always warm is never so cold as to check the gaieties always in progress therein. Monte Carlo, which commonly reminds one of a stage setting, collects people of every class and of all means, and a considerable number of them do not frequent the place simply for gambling purposes. Mentone consists of two parts, of which one—Mentone-Garavan—is very quiet and somewhat isolated. The other half, which is quite as well protected as any part of the Riviera other than Mentone-Garavan, is very much up to date and in "the season" very gay.

In regard to degrees of protection the towns on the Western Riviera are rather less favoured than those on the other two Rivieras, more especially when the mistral is blowing. The spot where the protection is in all respects most complete is Garavan.

From the point of view of country walks, picnics, and hill climbing, those places lying at spots where the ledge which has been mentioned is narrow certainly have an advantage over others.

It has already been stated that the rise of some of the Riviera health resorts was due to fortuitous circumstances. It is a fact to be borne in mind when the choice of a place for a long residence is in question. A great many new places have come into existence in the last twenty years, and the success of some of them, as also of some of their elders, the writer has never been able to understand. If merely a short visit be in question the choice of a locality may safely depend on the view of any friend who claims to know the Riviera and whose opinion on most subjects is to be regarded as well balanced, since there is no part of the Riviera that has not strong attractions. But if a long stay be anticipated, or the visitor wishes to fix up a more or less permanent home, he should look into matters carefully himself. As already suggested, he can get a great deal of useful information merely by study of a large-scale map, if he remembers the points of importance—namely, the narrowness of the ledge, the height of the valley side above it, the number of clefts or subsidiary valleys, the precise exposure of the town in respect of the south, and the extent to which its bay (practically every resort is at the head of a large or small bay) is protected on the east and west by outlying spurs of the general bulwark. He can make his choice still better by camping at some hotel for a short time and running along the Riviera either in a car or even in a train. In this way he is likely not only to fix on a place which will realize his expectations, but may even prove a pioneer, since he may discover a spot which, although lying in a not specially well protected area happens to be itself very well protected owing to the conformation of the hills in its immediate proximity. Many more or less isolated villas owe their existence to some such circumstance. The same consideration also applies equally to different spots in one and the same town.

### Dwelling Places.

People native to the Riviera commonly describe all others as "les étrangers," even when the nationality of the latter is French. Sometimes they distinguish them by speaking of "les résidents" when they mean villa dwellers and their like, or by applying the term "les hivernants" to those who live in hotels and pensions. The difference between the two classes, however, is rather elusive, since some villa dwellers occupy their Riviera homes throughout the year and others only for a few winter weeks. Correspondingly, many hotel sojourners, or true hivernants, return to the same rooms in the same hotels year after year and remain from beginning to end of the season.

The number of hotels is legion; they are, indeed, at the present time considerably in excess of usual requirements on the Western and Central Rivieras, thanks to the fact that the Germans, who formerly bulked very largely on these, have disappeared, and that Russian visitors, though for different reasons, are now comparatively rare.

The general system at all the hotels is much the same. Most have small or large gardens attached, and all have lifts, central heating, electric lighting, and bathrooms. Commonly, too, running water, hot and cold, is supplied in the bedrooms, and there are either special bridge rooms or some equivalent arrangement. Few are keen on letting bedrooms only; they prefer to arrange terms "en pension"—that is, terms which cover sleeping accommodation and the three ordinary meals of the day. These are a breakfast of coffee, tea, or chocolate, with rolls and butter, served in the bedroom, an elaborate meal ready soon after midday, and a five- or six-course dinner about half-past seven in the evening.

In a way, therefore, it may be said that the Riviera hotels are less hotels than elaborate boarding houses. But it should be added that in respect of general accommodation and of feeding arrangements they are in most cases superior to good seaside hotels in this country and always on a par with them. The same is true of their sanitary arrangements, and, at all

*BRITISH MEDICAL JOURNAL, 1921, ii, p. 112.

events at all places in the Central and Western Rivieras, the drinking water may be written down as safe. Besides ordinary first-class hotels there are, at several of the larger resorts, hotels which call themselves "de luxe"; they are an exact equivalent to such hotels as the Ritz or the Savoy in London. As for places calling themselves "pensions," the difference between them and the small hotels is not very marked. Usually, however, they do not keep night porters or care to receive visitors of irregular habits, or for less than a stay of a week or a fortnight, and the meals at all of them are of a less luxurious type than at the hotels, and are served at a fixed hour. Everywhere it is the custom to make up and supply gratis portable luncheons for those who wish to go out for the day.

It is difficult to make any precise statement regarding hotel charges, the chief reason being that the value of the franc is constantly varying. Also the number of francs asked for any given room is subject to alteration each year according to food and labour prices. Just before the beginning of each season the hotel proprietors arrange this question between themselves according to the class of the hotel concerned. Invariably, however, rooms facing the south are priced higher than those with other aspects. It is true that southerly rooms receive more sun than others, but the views from the windows are by no means always better.

The exact position of an hotel should always be ascertained before agreeing to stop in it for any length of time. Those practically on the edge of the sea have advantages, but are not desirable if accessible only from an entrance in a much-shaded street. Other things being equal, it is well to choose an hotel close to the centre of the town, but those at a distance from it often have the advantage of possessing such large and beautiful gardens that their guests if not strong are content to spend most of their time therein.

Likewise if the visitor's stay commences early in the season there should be a clear understanding as to what the charges will be at the height thereof. Last year there was a great outcry about the exorbitant prices demanded by Riviera hotel-keepers. The writer was never able to see that this was really justified; the prices were and always will be higher than pre-war prices, but English visitors, from whom almost exclusively the complaints came, forgot how little they were paying—thanks to the exchange—as compared with French visitors. Nor did they compare the prices they were paying on the Riviera with what they would have had to pay for like accommodation at health resorts and other towns in England. This year, we are told, the hotel tariffs on the Riviera have been considerably reduced.

If it be necessary to come down to exact figures and make a forecast as to the cost of a stay on the Riviera in the coming season it may be said that board and lodging at a good place will probably be obtainable for between twelve and twenty shillings a day.

A statement of the basis of this estimate may be useful. As the value of the franc shows no tendency to rise and food prices have not materially altered, last year's events are a fairly good guide. In that season the writer found rooms for several friends. Of these "A," a lady accustomed to life in a London "Working Ladies'" club, paid 18 francs a day en pension in a "commercial" hotel. She came for a fortnight but remained six weeks. "B," a lady from an English village, paid 30 francs in a poorly situated but otherwise good hotel; "C," a widow of means, paid at first 40 and then 50 en pension in a first-class hotel on the sea-front and in the centre of the town. "D," a well-to-do family man, paid 40 francs right through the season for each of his party in a first-class hotel with magnificent grounds at some distance from the centre. "E," a wealthy bachelor, paid in a "luxe" hotel 90 francs en pension for a long stay, but had a room fitted as a bed-sitting room, a private bath-room, and the services of a good valet.

As for dwelling places other than hotels and pensions it is well to appreciate the terms commonly used in speaking of them; an "appartement" means a flat, whether it be large or small; a "pavilion" means a very small house which has probably at one time or another been the lodge of a large estate. A "chalet," a comparatively recent term, commonly indicates a moderate-sized house away from the centre of the town but standing in very limited grounds. A "villa" usually indicates a very large house of many rooms standing in a large garden. As, however, in the case of large houses in London, many villas are now being cut up into flats and part of their grounds used for building purposes. There are also dwellings to which none of these terms are applied, but which are simply called by some fancy term, such as "The Nest" or "The Outlook." Their exact character should always be ascertained as some of them tend to be jerry-built.

All these various habitations can at times be taken unfurnished and on long leases; not infrequently too they can be purchased outright. In the latter case the purchase price sometimes represents a very low rental value. As a rule, however, they are let furnished and only for the season. In this case they must, according to local laws in most towns, be really completely furnished and be thoroughly habitable, such things as linen and table cutlery being provided. Naturally prices vary greatly, but an average price for an "appartement" of, say, two sitting rooms, three bedrooms, a kitchen, hall, and lavatory, would be between 4,000 and 5,000 francs for the season. If a bathroom be provided it usually means an additional 400 or 500 francs. A "pavilion" may sometimes be got for less than 2,000 francs, while the rentals of "chalets" and "villas" may be taken to run from 6,000 francs upwards.

The season from a house-renting point of view means in most places from October 15th to May 15th—that is to say, for a period of seven months. But proprietors are usually willing to extend the lease from its initial term for any additional number of weeks desired for a very moderate figure. It may also be said in favour of proprietors—in France a much-hated class—that on the Riviera they are not sufficiently sophisticated for heavy claims for damaged furniture, etc., to be common, as in England. Also, too, the ceremonies connected with habitation renting are relatively both simple and inexpensive. The agent makes out the necessary agreement, and commonly it is a very brief document, since generally French law is not elaborate and all agreements are interpreted according to local custom.

Even more than in the case of hotels is it desirable for the prospective renter to ascertain the exact position of the residence. It is true that more or less distant houses often have the advantage of exceptionally beautiful surroundings or of being specially well protected from weather conditions; but it is also true that the greater the distance from the centre of the town the greater the possible difficulty of house-keeping. Small "baker" and other like shops are usually to be found in the neighbourhood of any considerable collection of villas, but the larger tradesmen have not yet resumed their former practice of sending round for orders. It should also be ascertained whether any habitation that seems otherwise desirable has either an air space, if not a definite cellarage, or a cemented foundation. If neither, it may prove cold, despite the usual dryness of the soil. The furnishing of dwellings, though always complete, is not always very smart or of such a comfortable kind in the matter of chairs as those to be found in English private houses. All visitors, whether residents or hivernants, pay nowadays a local tax, which is devoted by law to improvement of the amenities of the place. The sum varies, but is never enough to make any difference in the general expenses of a winter outing. Except for this English people who take houses merely for the season escape all "direct" French taxation.

### "The Season."

The term "Season" from the house agent's point of view has already been defined, but it may be useful to add that he always expects—and commonly not in vain—to have disposed of at least two-thirds of the habitations on his books at least six months before "next season" will commence.

"The Season" in other connexions is somewhat less definite. At most places there are hotels that are ready for visitors all the year round, but the majority do not open until October is well under way and begin to close at the end of April. At some, indeed, the season is much shorter, not beginning until about Christmas time. These usually are "de luxe" hotels, catering solely for pleasure seekers of large means. There are also a few first-class hotels which habitually prolong their seasons well into June.

The reason for these differences is rather obscure; one factor, however, is that "les hivernants" are capricious in their habits; masses of them sometimes suddenly leave in order to get home for Easter, "the holidays," or for a big social or political event. Another is that many Riviera hotel keepers have season hotels elsewhere, and if for some reason their Riviera hotel be not very full they prefer to close down early and "repose" themselves and their staffs before starting a summer season elsewhere.

A third meaning of "Season" relates to public festivities, such as balls, battles of flowers, races, and the like. These commonly start some time in December, and end with April. Croquet clubs close relatively early, lest feet and the sun destroy their lawns, but tennis, bridge, informal dancing, and boat sailing survive much longer.

Finally, the term "Season" should also be defined from the point of view of calendar and climate. Taking all the four calendar seasons together, the general character of the climate is indicated by the flora of the locality. It is sub-tropical throughout; in other words, apart from flowers of every kind, the palm, the agave, the pomegranate, the prickly pear, the banana, the orange tree, and the bamboo all flourish; lizards and the tree fog are common, and in some places the growing of lemons is a staple industry. Such flora is in this country regarded as of a hothouse kind.

The Riviera climate is not, however, of the conservatory kind, since the air, being mainly of mountain origin, is distinctly on the dry side instead of humid. Nor should the term "subtropical" lead anybody to suppose that all the calendar seasons of the temperate zone in which England lies are not well represented. At times, though frost is rare, it is quite cold out of the sun and as soon as the sun has set; and occasionally, though this is by way of being a great event, there is snow on the southern side of the Riviera's bulwark. There is also, luckily for the country, usually plenty of rain, but also, luckily for the "hivernant," rainy days are few. When it rains it rains hard and has done with it. A related dissimilitude is that the air is always clear—that is, there is no mist and no fog—and clouds are few. Those who have to remain in England may, however, console themselves to this extent: when the English newspapers are talking of bad weather the Riviera press is very likely doing likewise. The "hivernant" expects nothing but brilliant skies and thoroughly genial air, and if during any given period of twenty-four hours neither condition exists his indignation is great. Usually, however, the home-stayer's envy is thoroughly justified, an ordinary Riviera October, November, and December being like a fine autumn or fair spring in England; January, February, and March like a good English summer; April, May, and June like a hot English summer. Of July, August, and September the writer cannot speak from personal experience, but he understands that the two earlier of these months are usually too hot to be enjoyed by most English people.

People who go to the Riviera either for definite health reasons or merely to avoid fog, mist, chronic rain, absence of sun, and possibly sleet and snow, should start if possible before the end of the autumn, and should not move away until more or less summer-like conditions in England seem well established. If free agents, it is folly for them to return home just in time for an Easter blizzard or a belated winter.

### Summer Mountain Resorts.

There is indeed no positive reason why they should leave the Riviera at all. A good many "residents" do, in fact, remain all the year round or merely spend a few weeks during July and August at one or other of the small summer resorts in the mountains close at hand. Of these there are already a good many, and others are being annually opened up thanks to the introduction of motor transport. In altitude they vary between, say, 1,200 and 5,000 feet.*

The opening up of the "Route des Alpes" by the P.L.M. Railway Company has also rendered pleasantly accessible, to those wishing to leave the Riviera during the hottest period in summer, the many delightful little villages situated high up in the mountainous hinterland; further, an excellent means of travelling to such famous historical towns and watering places as Briançon, Uriage, Grenoble, Chambéry, Aix-les-Bains (also well known as a winter sports centre), Annecy, St. Gervais, Chamonix-Mont Blanc (France's premier winter sports centre), Thonon, and Evian. The trip can be made in the well-appointed P.L.M. motor cars, which, starting from Nice, wind through the French Alps to Evian-les-Bains, overlooking the Lake of Geneva. The "route" has been skilfully planned so that the most beautiful and impressive scenery which the French Alps boast may be seen by the travellers. The trip is divided into six easy stages, each of one day's duration, which may be taken independently; opportunity is thus afforded to those wishing to spend a few days or a season at any of the well-known towns and watering places already mentioned linked up by the "route," or at any of the picturesque little mountain villages which are touched. The highest mountain roads are used, some of the "cols" traversed being over 5,000 feet high.

There are also "hivernants" who do the same, or vary proceedings by a visit to some hydropathic town such as Uriage-les-Bains, or the more expensive but hardly more fashionable Aix-les-Bains, both in Savoy. It is also a fact that several Riviera resorts have a summer as well as a winter clientèle, the former coming down for the sea bathing, though they include few English. On the whole, therefore, it seems safe to conclude that though it is the fashion to go away, life on the Riviera must be livable even in the hottest weeks of the year.

### Social Conditions.

In the last ten years social conditions have changed considerably on the Riviera. Formerly certain towns were visited almost exclusively by invalids, while others were regarded mainly as pleasure resorts. Nowadays, though there are many invalids and convalescents to be found everywhere, all places alike make a point of organizing amusements of one kind and another. Naturally, however, these are better developed in the older settlements than in the new that keep springing up year by year. Such enterprises take the form of tennis clubs, croquet lawns, golf links, bridge clubs, book clubs, thés dansants, balls, char-à-banc motoring, and occasional horse races, motor boat and sailing boat competitions, aviation meetings, battles of flowers, and the like. Everywhere there are churches of various denominations, and, since most people go in for picnicking and walking, the hill and mountain paths are well maintained and provided with sign-posts. Also in all the larger towns there are casinos providing theatrical and operatic performances, ball rooms and bands, and opportunities for losing money at "la boule" and other gambling games. A certain number of people go in for sea fishing, and for those who stay late in the season there are ample sea-bathing facilities. Also at all times of the year amateur and professional artists are everywhere to be seen.

In matters of dress there are people who continually change their costumes during the day, and others who are never seen except in the weirdest and apparently never altered apparel. At the hotels and casinos in the evening dinner jackets, and the equivalent feminine costumes, are invariably worn.

The Riviera is, in short, just like the west end of any metropolis, but spread over 200 kilometres of country instead of over a few square miles—a locality where everyone, for the most part, pays his money and makes his own choice of the why, when, and how. There are people who live such retired lives that they are never seen anywhere but perhaps in a church, and others who go in for every form of amusement and become rapidly known by sight even to quite temporary "hivernants."

Touch is maintained with the outside world by means of telegrams posted up at frequent intervals during the day at newspaper offices and outside banks, and by the London and other newspapers which arrive the day after their publication. But there are few or no reference libraries, and this is a great handicap to those whose preferred occupations are mainly intellectual. They can, however, if they please, occupy themselves in topographical study, in which direction, as also in those of ethnography and folk-lore, there are great temptations all along the Riviera.

Finally, to revert for a moment to the matter of dress, two quite common mistakes should be avoided. The one is thinking that a visitor who wishes to take part in everything that is going on will be comfortable if he arrives with nothing but a golfing outfit; the other is thinking that the Riviera is at all times so warm that the lightest summer clothing will suffice. Those who wear more or less warm underclothing at home should not abandon it, and a light wrap and a warm coat are always desirable, even if eventually the latter be only used while travelling.

Riviera society is remarkably mixed, and is less divided up by questions of means, occupation, and origin than is "society" elsewhere. A fair number of people keep motor cars, but their possession, though sometimes envied, does not, as in some places, confer any social status, and is not on the whole especially desirable. There are plenty of other means of getting about, and in the "Season," at any rate, the Riviera is not an ideal place for motoring, despite the care with which the roads are maintained.

* Among those at present best known are St. Martin Vesubie, alt. 3,200 ft.; Vence, alt. 1,100; Allos, alt. 4,700; Belvedere, alt. 2,600; Berthemont-les-Bains, alt. 2,550; Beauvezer, alt. 3,900; Annot, alt. 2,200; Beuil, alt. 4,000; Villars-Colmar, alt. 3,800; Peira Cava, alt. 5,100.

Socially the only other outstanding point is that there is very little "visiting." Hivernants tend to fall into groups according to the amusements chiefly attracting them, and residents commonly do the same and frequently have home occupations, or are keen on gardening and the like; so beyond, perhaps a few formal tea parties at their own homes, they trust to luck for meeting their social acquaintances elsewhere. Nevertheless there is much real friendliness among habitual Riviera dwellers, whether hivernants or residents, and it does not lack exhibition when the need arises. In such a community it is inevitable that there should always be plenty of material for gossip and an infinity of stories about people on the Riviera, both alive and dead, are always current. But it can also be said that, even though such stories be known to be true, the tendency of the Riviera is to take everyone exactly as they themselves find him or her, so in the long run neither gossip nor stories do anyone any harm.

### EXPENSES.

Many English people buy all the francs they think they are likely to require before leaving the United Kingdom. Such people add somewhat to their immediate cares and are just as likely to lose as gain by the transaction. Banks are very numerous on the Riviera and most of them are willing to cash at sight English cheques from almost anybody.

The normal value of a franc is slightly under tenpence, but for the last three years this value has never been more than fivepence and often not much more than fourpence. The value varies both in London and abroad, not only every day but several times a day. The price one may have to pay for any given number of francs may be much lower next week than on any given "to-day"; on the other hand it may be much higher, so the wisest course is merely to buy such a number of francs as suffice for the needs of the moment. As for the future the only thing that can be said with assurance is that the value of a franc is unlikely to rise in the coming season above its average value since the armistice. Consequently life on the Riviera during the coming season will be relatively inexpensive for English people and dear for their French comrades, as also for those who "bought forward" a long time ago.

The price of an ordinary first-class ticket to the Riviera is at the present moment £8 10s., and £13 8s. return. The price varies each month, the companies fixing it according to the rate of exchange prevailing through the preceding month. It is not, however, essential to travel first-class; trains having second-class carriages reach the Riviera as fast as those limited to first-class passengers. The journey from London to, say, Mentone (the farthest point of importance on the French Riviera) can be comfortably accomplished in just under thirty hours. There are also second-class carriages which the traveller need not quit between Calais and the final destination. To the particular train in question a restaurant is attached between Calais and Paris, and at Paris and at various stations afterwards luncheon baskets are brought to the through carriages. To all other Riviera-bound trains restaurant cars are attached practically throughout the whole journey, and it is said that in the coming season they will be so attached to the "through" train from Calais. Sleeping accommodation on the trains can be obtained by those who require it, provided they are travelling first-class. The principal difference, it may be noted, between a "couchette" carriage and a "wagon-lit" is that the latter is provided with toilet accommodation and ordinary bedclothing and that the former is not.

There are also the luxurious lits-salon compartments; the lits-salon "ordinaires," a compartment containing three couches side by side, and the lits-salon "avec draps," a compartment containing two couches with sheets; both of these compartments are provided with toilet accommodation and are well ventilated.

It is perfectly easy to reach the Riviera comfortably without knowing a word of any language except one's own, and when there a knowledge of French or Italian is of no particular advantage unless one starts housekeeping.

Most of the servants obtainable—and any house agent can commonly provide them—are Italians. A few will do nothing but some special form of work, but most are competent cooks and ready to take on any work that may be required. Their wages run from 100 to 200 francs a month, and if treated on patriarchal lines they commonly prove loyal and honest servitors; still they should be carefully observed before the latter conclusion is drawn in respect of them. They usually know more or less French, sometimes a little English, and in any case a means of mutual comprehension is usually rapidly established between servant and mistress.

The prices of food, electricity, gas, and coal are considerably above English prices. But such difference is at present fully outweighed by the abnormal cheapness of the franc. A servant, by the by, should not necessarily be written down as dishonest because when sent marketing she returns her expenditure at slightly more than the sum at which the mistress herself might possibly have obtained the same goods.

### SOURCES OF INFORMATION.

The intention of this article has been to give a general idea of what life on the Riviera is like. Those who have a stay there definitely in view can obtain detailed information from (1) the Paris-Lyons-Mediterranean Railway Company, 179, Piccadilly, London, W.1; or (2) the Office Français de Tourisme, 56, Haymarket, London, S.W.1. In nearly all French towns which desire to attract strangers there is a society which lays itself out to supply information; their titles vary, but a letter addressed to the Secretary of the Syndicat d'Initiatif will reach the desired destination. In most cases, however, the information obtained from one of the first two sources indicated will suffice, especially in the matter of getting the names of hotels, house agents, and the like. In regard to engaging rooms the traveller must of course communicate direct with the hotel keeper.

By way of concluding the whole matter it may be noted that the essential differences between Riviera resorts and those either on the shores bordering other parts of the Mediterranean or on islands in it are the greater accessibility of the Riviera resorts and the mountain character of their atmosphere. A similarly brief comparison between the Riviera and mountain resorts in Switzerland is more difficult. The main points are: (1) that a visitor cannot count on typical Swiss winter conditions unless he goes to a place at least 4,000 feet up, nor can he expect them to last more than about ten weeks; (2) that outdoor attractions are small unless the individual is sufficiently young to take an active part in winter sports; (3) when young persons are in question there is so much temptation towards exercise—skating, ski-ing, or tobogganing by day, and dancing and parlour gymkhanas at night—that they are very liable to overdo things. On the Riviera there is plenty of opening for exercise and nearly everybody does as a matter of fact take a good deal of exercise in the daytime, but after sundown the general tendency is to rest, except, perhaps, for an occasional visit to a casino or to some dancing place.

## SMALL-POX IN LONDON.

THE following report from the county medical officer on recent outbreaks of small-pox in and around London was presented to the London County Council at its meeting on October 24th:

"During the period July 26th to October 13th, 1922, 19 cases of small-pox occurred in and around London, including one case which was not discovered until the patient had completely recovered, and was therefore not included in the list of notified cases. This series of cases may be classified into two main groups with the addition of one isolated case, as follows:

"(*a*) This outbreak originated in Stepney in the person of a youth, aged 16, who developed a rash, which was diagnosed as chicken-pox, on July 4th, 1922. After remaining in bed for four days he assisted his mother in a shop on the premises, serving refreshments and tobacco. He infected six persons with small-pox, four of whom lived in Stepney, including one who developed his illness in Southend-on-Sea, and two in West Ham; one of the latter worked in the infected area whilst the other traversed the neighbourhood daily on her way to work. Four additional cases occurred among the contacts of the six patients infected by the original case, and with these the outbreak terminated, the last case having occurred on August 12th. Of the eleven cases comprising this outbreak, two died, and two others developed a severe type of illness; the remainder suffered from more or less mild attacks. Two of the patients had never been vaccinated and of those one died; in seven cases, whose ages ranged from 16 to 38 years, there was no record of vaccination since infancy, and one of these also proved fatal; the remaining two had been vaccinated since infancy and their illness was of a mild character.

"(*b*) This group of cases appears to have originated in Dartford, where three persons were removed to hospital from the same address on September 25th, suffering from small-pox.

"Two of these patients had nearly recovered from a mild attack and were only discovered when a doctor was consulted in regard to the third patient, a woman aged 49 years, who died a few days later in hospital. A married sister living in London and her child,

a girl aged 12 years, visited this woman at Dartford on September 23rd, after the rash had appeared. They returned to London the following day, and were vaccinated on September 27th, but too late to ward off the disease. They fell ill about October 3rd, and were removed to hospital from an address in Fulham on October 5th. The child's attack is modified by vaccination, but the mother has since died. Two further cases, one in Dartford and one in Bexley, have since occurred among the contacts.

"(c) An isolated fatal case of small-pox in Bethnal Green was notified, and removed to hospital on September 12th. The source of infection was not traced.

"It will be noted that unrecognized cases were responsible for both groups of cases (*a*) and (*b*), thus emphasizing the need for prompt recognition of the disease in the earliest possible stage. In this connexion it is appropriate to mention that the Council places at the disposal of medical officers of health and medical practitioners in London the services of its expert small-pox consultant, who is available at all times to give assistance in diagnosis.

"The fatality rate of small-pox in London during these outbreaks, in which 5 out of the 19 patients died, presents a striking contrast to that in the rest of the country, where over 700 cases have occurred, mainly in the Midlands and the North, during the present year, of which only one has proved fatal, according to the information at present available. This marked variation in the degree of mortality may be ascribed to divergent types of small-pox, the north country type having remained up to the present consistently mild.

"The danger of an epidemic of virulent small-pox in this country is accentuated by the unvaccinated condition of a large proportion of the population, especially young persons. Since the passing of the Vaccination Act, 1898, which provided for exemption from compulsory vaccination of an infant on the production of a certificate of 'conscientious' objection by the parent, the number of infants vaccinated throughout England and Wales has declined from 66.4 per cent. of births in 1899 to 39.5 per cent. in 1920. In pre-vaccination days the incidence of fatality of small-pox fell chiefly upon young children, and the accumulation within recent years of large numbers of young persons, deprived of the protection afforded by vaccination in infancy, may be fraught with grave consequences in the event of small-pox becoming prevalent."

# England and Wales.

### SOCIETY OF MEDICAL OFFICERS OF HEALTH.

THE annual dinner of the Society of Medical Officers of Health—now in its fifty-seventh year—was held at the Hotel Cecil on October 20th, with the president, Dr. T. Eustace Hill, in the chair. Owing to the present political crisis, the Minister of Health, Sir Alfred Mond, was unable to attend, and the principal toast—Prosperity to the Society—was proposed instead by the Dean of St. Paul's. In a brief speech Dean Inge remarked that medical men must sometimes feel that they were keeping alive persons whom Nature, with perhaps greater wisdom, might prefer to kill. There were diseases, such as haemophilia, which when once established in a family could not be bred out of it; the only way to eliminate such diseases was to discourage the propagation of stocks in which the defect existed. Preventive medicine, for whose triumphs he had great admiration, ought to lead on to eugenics. Those who knew most about these matters were aware that it would be long before knowledge was accurate enough to justify much legislation; but he hoped most medical men would agree that in the far future the science of eugenics must form an extremely important part of preventive medicine. The President, in his reply, mentioned some of the outstanding achievements of the public health service on behalf of the individual and the community. He said that the membership of the Society of Medical Officers of Health was increasing, and was now 1,700; the Society embraced all branches of the service and included seven specialist groups. Dr. Eustace Hill added a word of gratitude to the British Medical Association (represented at the dinner by Dr. Wallace Henry, Dr. Bolam, and Dr. Garstang) for its valued co-operation in obtaining security of tenure and improving the status and remuneration of the health service. The toast of the guests was proposed by the past president, Dr. W. J. Howarth, and responded to by Sir Herbert Nield, K.C., M.P., Sir Humphry Rolleston, K.C.B., President of the Royal College of Physicians of London, and Dr. R. A. Bolam, Chairman of Council of the British Medical Association. The health of the President was proposed by Dr. Sidney Barwise.

### NATIONAL MILK CONFERENCE.

The National Milk Conference continued its sessions on October 17th and 18th at the London Guildhall. An account of the first day's proceedings appeared in our last issue (p. 771). Sir Alfred Mond, who was chairman on the second day, said that the aim of the legislation he had recently carried through was to induce the consumer to insist upon getting a better quality of milk. The new orders now under consideration had been purposely framed with a good deal of latitude, and he looked forward to ensuring, in addition to a very high standard grade, which must necessarily be expensive, a grade of milk free from manurial contamination and from tuberculous infection, which could be produced by any dairy farmer without great expense.

#### *Bovine Tuberculosis and its Relation to Man.*

Dr. A. Stanley Griffith, a member of the Bacteriology Department of the Medical Research Council, speaking on the frequency of bovine infection in the human subject, presented the following figures relating to surgical tuberculosis:

| | Total number of positive cases. | Percentage of bovine infections. |
|---|---|---|
| Cervical gland ... ... | 154 ..... | 46.5 |
| Bone and joint... ... | 476 ..... | 18.3 |
| Lupus ... ... ... | 126 ..... | 50.8 |
| Scrofulodermia ... | 52 ..... | 38.4 |
| Genito-urinary ... | 17 ..... | 17.6 |

The percentage of bovine infection was highest in all these categories among children under 5 years of age, but adults were not exempt; 25 per cent. of the cervical-gland cases occurring in persons over 16 years of age were traceable to the bovine source. In pulmonary tuberculosis the human strain was the cause of infection almost to the exclusion of the bovine; this he attributed to the fact that, with few exceptions, the infection was of respiratory origin. He believed the bovine bacillus to be as virulent for man as the human; if its ravages seemed less evident, this was because its channel of entrance was restricted to the alimentary tract. Dr. Nathan Raw, M.P., maintained that a larger amount of tuberculous disease might be attributed to milk than Dr. Griffith had suggested. During the last twenty years, out of some ten thousand hospital patients suffering from tuberculosis who had come within his experience, he estimated that 2,100 were infected from milk. He had never found the human and the bovine bacilli both present in the human body. Dr. Stanley Griffith replied that in his series there were five cases in which bacilli both of the human and the bovine type were found. It would be dangerous to vaccinate cows with human bacilli to protect them from bovine tuberculosis; in some experimental cases he had found human tubercle bacilli living in the mammary sinuses for months, and passing out into the milk without causing any disease in the cow.

#### *Variations in Chemical Composition of Milk.*

Mr. Charles Crowther, Ph.D., said that while the yearly average composition did not vary at all widely in different years or localities, there was an appreciable seasonal variation from (in tested cases) 3.52 per cent. fat in June to 3.96 in November, and from 8.78 per cent. non-fatty solids in August to 9 per cent. in January. The fat content of the morning milk was often much below that of the evening. Causes of variation were the individuality of the cow, advance of lactation (quality improving as lactation advanced), increasing age (producing a very gradual decline in quality), the intervals between milking (the longer the interval the poorer the fat), incompleteness in milking, and the influence of food—a factor commonly exaggerated—on milk secretion. Dr. A. K. Chalmers said that in Scotland a departmental committee was now recommending 3 per cent. fat as the legal standard, but from Dr. Crowther's figures it appeared that in a group of ten cows tested every day for a fortnight the morning milk only once reached 3 per cent. fat, though the evening milk was generally in excess of 4 per cent.

#### *Handling and Pasteurization of Milk.*

The most animated discussion of the conference was on pasteurization. It was opened by Professor Georges Dreyer

of Oxford, who said that though comparatively low temperatures of 60° C. (140° F.) or rather more for twenty or thirty minutes would avail to kill the bacteria in milk, it was better to have a temperature of 130° to 135° C. (266° to 276° F.) for 50 or 60 seconds. The only effect on the vitamins was likely to be on the antiscorbutic vitamin, but boiling for a short time seemed to be less harmful to this vitamin than exposure to a lower temperature for a longer time, while reheating was fatal to it. Professor Dreyer added that pasteurization would not make sanitary precautions on the farm less necessary. He considered that dried milk offered the best solution of the problem of milk distribution in cities. Dr. Charles E. North, of New York, said that at the infant-milk stations in New York, which now numbered 69, about 25,000 babies were fed, in all cases on pasteurized milk, from one source of supply, under a single supervision, the results being checked by doctors and nurses. Since the adoption of pasteurization in New York City the death rate of infants had been reduced from 165 per 1,000 to 70 per 1,000. Dr. Eric Pritchard said that the decrease in this country in infant mortality during the last twenty years corresponded to the increasing use of sterilization methods, though he would not describe that as the only factor. The application of heat was the simplest method of sterilization, and the food value of milk suffered in no degree from being heated. Mr. Nathan Straus, former president of the New York Department of Health, described the flash-point system of commercial pasteurization as inefficient, since by this process the milk flowing through the chamber continuously was not all subjected to the pasteurizing temperature. To make the milk innocuous it must be retained for twenty-five minutes at 145° to 160° F. Dr. Stenhouse Williams pleaded for more evidence before the value of pasteurized milk was taken for granted—evidence alike as to the extent of epidemic or other disease which was caused by raw milk and as to the possible effect of pasteurized milk in setting up nutritional disorders. Dr. John Robertson (Medical Officer of Health, Birmingham), in a paper on the distribution of milk, said that the distribution of milk in large cities cost as much as milk production on the farm. Moreover, transit involved contamination, which impaired the keeping quality, so that people were deterred from purchasing this important article of food. The ordinary farmer with his existing farm buildings could produce clean milk of good quality if he took some obvious and inexpensive precautions. Two essentials were a steam sterilizer and an adequate supply of cold water. While advocating pasteurization, he criticized the flash-point method, which impaired the antiscorbutic vitamin.

*Food Value of Milk and its Care in the Home.*

Sir George Newman, who presided over the final session, argued that impaired physique resulted more often from lack of milk than from unsatisfactory milk. The proper care of milk in the home was a matter for education, and instruction ought to be given in this respect to girls in the elementary schools. Dr. Robert Hutchison, in opening the discussion, said that milk was the only animal food which contained representatives of all the nutritive constituents. The casein was a protein of quite special value for repairing waste and building up tissue. Lactose was exceptional among sugars because it was not too sweet and was incapable of fermentation. The mineral salts, calcium and phosphorus, were also of great value. Milk, moreover, was a food with a very high degree of absorbability. From the enonomic point of view it compared favourably with other animal foods, as a source both of energy and of building material. It had, however, the disadvantage of bulk, and the nutritive constituents were not in the ideal ratio, except for infants. His experience in private practice was that the supply of milk had oftener to be cut down than to be increased. He found the milk of Jersey cows specially likely to produce bilious trouble on account of its richness. He strongly favoured pasteurization. All the milk at the Great Ormond Street Hospital was pasteurized in the hospital's own plant. In the case of out-patients the mothers were recommended, in the absence of pasteurization, to scald the milk in a double-jacketed saucepan. There need be no fear that pasteurization, by robbing the milk of its proper content, would lead to scurvy. He had never seen a case of infantile scurvy develop as a result of the use either of pasteurized or of dried milk. Dr. Leonard Hill said that overexposure of the milk diminished its vitamins; the more repeated pouring of milk from one can to another could have this effect. He would prefer to have milk cheap and dirty rather than to have it pure and dear, but he did not believe that it was necessary to have milk dirty in order to have it cheap. Sir Malcolm Morris also advocated pasteurization, and a speaker from Leicester attributed the decline in infant mortality in that town to the use of dried milk at the infants' milk dépôts. In reply to a question, Dr. Hutchison said that intolerance for pasteurized milk on the part of a child must be very exceptional; he had never come across a case in his own experience.

The final discussion, on the education of the public and of the dairy industry, was opened by Sir Daniel Hall, chief scientific adviser of the Ministry of Agriculture.

### Liverpool Medical Institution.

The inaugural meeting of the eighty-fourth session of the Liverpool Medical Institution took place on October 19th, when a large number of members and associates were present to hear the address of the new President, Dr. J. Hill Abram, who spoke on the subject of the medical curriculum. Dr. Abram said that he was attracted to this theme as recently there had appeared no less than three reports on medical education which he had studied closely. These were the Carnegie report, Sir George Newman's report, and Dr. Herringham's report. Dr. Abram said that apparently each lecturer considered that his particular subject required more attention by the medical student than was at present given to it, with the result that if all the teachers were to be satisfied the medical curriculum would have to be lengthened considerably. The number of examinations and their nature were also criticized, and as the student in one university could take one subject at a time, it was pointed out that he might have no less than fourteen ordeals to go through before qualification. He considered that there was at present still a want of correlation between the scientific and clinical subjects, and emphasized the important feature that the practice of medicine, though based on science, was an art. The efficient treatment of the patient was much more valuable in practice than the application of a scientific instrument or the exhibition of a drug. He urged the importance of developing the clinical side of medicine and of making the scientific subjects subsidiary to the main object in view. He suggested that a course of lectures might be instituted with advantage in order to show the true correlation between applied science and the practice of medicine. He held the view that it was of vital importance to free the student during his last three years for the unhampered study of medicine, surgery, and obstetrics. He considered that examinations in the subjects studied during these years should be held only at the end of the fifth year, and that in the first of these years there should be no examinations as at present. He thought that the burden of examinations needed lightening, and hoped that in the new changes in the curriculum which were about to be made this point would not be lost sight of. Dr. John E. Gemmell, the past president, proposed, and Dr. R. W. MacKenna seconded, a hearty vote of thanks to the President, which was unanimously carried. Afterwards the President entertained the members to supper, and this was followed by a concert. The endowment fund is now nearly £5,000, and the number of members associated is 435, the largest hitherto recorded in the annals of the institution.

### Dinner to Emeritus Professor Henry Briggs.

A large number of friends, former pupils and colleagues, assembled on October 21st at a complimentary dinner to Professor Henry Briggs, who has recently retired from the chair of obstetrics in the University of Liverpool. Major Mark P. Rathbone, president of the Liverpool Maternity Hospital and Ladies' Charity, was in the chair, and proposed the health of Dr. Briggs in terms full of appreciation of the signal services he had rendered to the Maternity Hospital during the long period he had been attached to it. The value of such an institution, he said, had been enhanced by the untiring activity of Dr. Briggs, and he felt it to be a great honour to preside on that memorable occasion. Dr. J. G. Adami, Vice-Chancellor of the University, eulogized the work of Dr. Briggs as professor of obstetrics. He had so developed, or rather created, his department that he ventured to state that it was second to none in the United Kingdom. The obstetric museum, replete with models for teaching and training the student and containing specimens, normal and abnormal, of the various phases of

labour and its complications, was the result of the enthusiasm and personal sacrifices of Dr. Briggs. Indeed, as long as the museum lasted it would be a fitting memorial to his work. Other speakers included Dr. J. Hill Abram, Dr. J. Hayward Willett, Mr. Rushton Parker, and Miss Frances Ivens, all of whom emphasized the enthusiasm and energy which Dr. Briggs brought to bear on everything he undertook. Professor Briggs, in replying to the toast of his health and the appreciation of his work, gave his reminiscences from the time when he became demonstrator of anatomy at the Liverpool Royal Infirmary School of Medicine up to the present. In developing the obstetric department and in using the Maternity Hospital for instructing students and originating an outdoor department for parturient women, he had had many obstacles to surmount and many awkward corners to turn before success crowned his efforts. As with most innovators success was not always easy and he admitted he often felt like Job. He thanked his friends for the honour they had paid him, assuring them that what he had done for the obstetric department of the University was in itself a work of love and one on which he had concentrated all his energies.

### Annual Medical Service at Liverpool.

The annual medical service took place on October 23rd at St. Luke's Church, Liverpool, when the Right Reverend Bishop Ryle, Dean of Westminster, preached to a large congregation, among whom were the Lord Mayor, the Vice-Chancellor of the University, and the President of the Liverpool Medical Institution. Many medical men were present, some in academic robes, as had been suggested by the Committee. The service was choral and the vicar, the Rev. A. J. M. Macdonald, read the prayers. The Dean took as his text 1 John, 4–7, and emphasized the brotherhood of man. He said that as in science, philanthropy, literature, and art no frontiers were known, so as a result of the great war the principle of the brotherhood of man was being forced on the attention of the reluctant world. He claimed the medical profession to be a constant witness and a glorious interpreter of the fundamental principle of the brotherhood of man. The Bishop of Liverpool read as the lesson the parable of the good Samaritan, and pronounced the blessing. The offertory was taken on behalf of the Royal Medical Benevolent Fund, and amounted to £65 15s. 10d. The honorary treasurer, Dr. J. Ernest Nevins, 32, Prince's Avenue, Liverpool, will be grateful if those who were unable to be present would send their donations before the fund is closed.

### A Lancashire Institution for Mental Defectives.

From the annual report lately presented by Dr. F. A. Gill, medical superintendent of "Calderstones," a certified institution for mental defectives at Whalley, near Blackburn, Lancashire, we learn that the Lancashire Asylums Board in 1920 allocated the buildings at Whalley, originally erected as an additional county lunatic asylum, for the reception of patients certified under the Mental Deficiency Act, 1913. The buildings were occupied during the war as a military hospital. A working party from Brockhall, a subsidiary establishment, commenced to clear the wards in August, 1921, and there has been a steady influx of defective patients since. During 1921, 391 males and 284 females, making a total of 675, had been admitted; of these 5 had died, 1 had been discharged, and 9 granted licences. There had also been several interchanges between patients at the principal establishment and the subsidiary one at Brockhall. The whole institution has been licensed by the Board of Control for 2,100 defective patients, 1,050 of either sex, and of all grades. The bodily health on reception is described as poor, but 5 deaths only occurred during the year, and influenza was the only epidemic. Dr. Gill is to be congratulated on the progress made in the organization of this large institution, a somewhat complex task considering the varying grades and ages of the patients dealt with. An effort is made to find work of some kind for everyone capable of doing it; 332 males and 268 females are at present employed in work on the land, in the workshops, and in laundry and domestic occupation, while 69 males and 138 females are said to be unemployable. The laundry work is heavier than that of an asylum for the ordinary insane. Dr. Gill does not seem to anticipate much benefit from the school education of mentally deficient children (62 attend the schools), but it may be urged that an appropriate school training by judicious instructors has a value in promoting proficiency of hand and eye as well as of arousing intelligence which is useful in the training necessary to learn a handicraft.

# Scotland.

### Edinburgh in the Sixties.

The inaugural address of the new session of the Royal Medical Society, Edinburgh, was delivered on October 20th, in the rooms of the Society, by Dr. Byrom Bramwell. He spoke on the subject of the Edinburgh medical school and its professors in his student days of 1865–69. He said that when he commenced the study of medicine the Edinburgh medical school was a comparatively small one, the average annual number of medical students at the University during his time being 469, while the average during the past four years was 1,825. The students in those days suffered great disadvantages as compared with the students of to-day as regards both work and play. During the three years when he was captain of the cricket eleven, although they had a fair team, they were very much handicapped because they had no ground to practise on. He did not believe that there was any medical school in the world which had such a remarkable body of men attached to it as the Edinburgh medical school when he became a student. Among them were Sir Robert Christison, professor of forensic medicine for eleven years and of materia medica for thirty-five; James Syme, the greatest operating surgeon of the century; Hughes Bennett, professor of physiology, who was the first to teach the systematic use of the microscope in this country, the first to use cod-liver oil, and gave the knock-out blow to bleeding, which before his time was practised for anything and everything; Lyon Playfair, professor of chemistry, who became a member of parliament and postmaster-general under Mr. Gladstone, and was afterwards made a peer. There were many other men of note, such as Goodsir and Laycock, but the greatest of them all was James Young Simpson, professor of midwifery, who began life as a baker's boy, qualified at 19, and became professor of midwifery at 29; he had the biggest practice that any Edinburgh man ever had, and his funeral was attended by 30,000 people. The men of those days were great personalities, men of very strong will and pugnacious spirit. Dr. Byrom Bramwell trusted that the work of those men would be a stimulus to the members of the society to do what in them lay to maintain and if possible to increase the credit and renown of their great university, their celebrated medical school, and their venerable society.

### Post-Graduate Study in Glasgow.

The desire having been expressed for more ample facilities for post-graduate clinical studies during the winter months in Glasgow, the board of the Glasgow Post-Graduate Medical Association has decided to conduct a number of special courses, in addition to the usual weekly demonstrations which have been given in former years. Post-graduate teaching in Glasgow from November to May is, therefore, now available in three forms: (*a*) weekly demonstrations, (*b*) special courses, and (*c*) clinical assistantships. The series of demonstrations will be given on Wednesday evenings and has been arranged much as in former years; the range of subjects is wide, including medicine, surgery, obstetrics, diseases of children, dermatology, ophthalmology, and other special subjects. This series is intended especially to appeal to practitioners who wish to keep in touch with recent advances in a general way, and to compare the methods of diagnosis and treatment employed in different institutions. A feature this year will be the demonstration and discussion of cases sent in by graduates attending the course. The fee for the course is three guineas. A number of special courses have been arranged to meet the needs of those who desire more intensive and systematized post-graduate study, and in these the number of graduates will be limited. These special courses include eight meetings on medical ophthalmology; a course on the study of the welfare of the mother and newborn infant, including lectures and clinical and pathological demonstrations (two courses of nine meetings each have been arranged, one before and one after Christmas); a course on nervous diseases, with special reference to syphilis, conducted at the Western Infirmary; a series of clinical demonstrations on surgical diseases of children, at the Royal Hospital for Sick Children; and a course on clinical psychiatry at Hawkhead Mental Hospital. The fee for each of the special courses (except that on surgical diseases of children for which no fee is specified) is two guineas. In a certain number of the institutions taking part in the work of the Post-Graduate Medical Association clinical assistantships are available; they

are limited in number and are designed to make provision for graduates who desire opportunities for the detailed study of a special subject; a graduate who desires to obtain a clinical assistantship must enrol for a period of three months, and must be prepared to devote to the work either the whole or part of the day, according to the terms of the particular clinical assistantship which he holds. The syllabus of the courses, containing full particulars, may be had from the Secretary, Glasgow Post-Graduate Medical Association, The University, Glasgow.

### GLASGOW MEDICAL LUNCH CLUB.

An interesting meeting of this club was held on October 19th, when the chair was taken by the president, Dr. W. L. Reid, and after lunch Dr. G. C. Cossar shortly addressed the members on his work amongst boys in the poorer quarters of the city. He explained the methods in use for the training of these boys for some definite employment. Particularly he spoke of his boys' training farm within easy reach of Glasgow, and of his farm in Canada to which boys could be drafted. He gave several illustrations of the success attending these efforts in enabling the lads to make good in this country or abroad. Dr. Cossar was followed by Mr. A. Burchard Ashton, Boy Scout Commissioner of Emigration, who spoke more particularly of the very complete organization now in operation all over the world under the Boy Scout movement, whereby following a period of preparation boys could be drafted to the colonies or elsewhere. The thanks of the members were conveyed to the speakers by Dr. McKail.

### EDINBURGH HOSPITAL FOR WOMEN AND CHILDREN.

A house-to-house collection is being made in Edinburgh in support of the Edinburgh Hospital and Dispensary for Women and Children and the Hospice in High Street; it is hoped to commence early next spring the erection of the proposed Dr. Elsie Inglis Memorial Hospice in connexion with this hospital. The authorities of the hospital have acquired a site at Spring Gardens, Abbeyhill, and expect that within the next two years the institution will be in full working order. Before progress can be made with the scheme, however, further funds will be required, and the question of endowment must also be considered. It is intended that the new hospice would especially benefit those women who need hospital care during confinement, and who are able to make some contributory payment. The beginnings of the Edinburgh Hospital for Women were made by Dr. Sophia Jex-Blake, who formed a committee and started a hospital of five beds in Grove Street, Edinburgh. From this small institution the hospital at Bruntsfield developed, the new wing of which was opened in 1911 by Queen Mary. The hospital now has 56 beds, including 11 cots for children, and is the first of its kind in Scotland staffed and administered by women. With the work of this hospital the name of Dr. Elsie Inglis will always be associated.

## Ireland.

### THE WATER SUPPLY OF CORK.

THE Resident Medical Officer of the Cork Mental Hospital stated in his last report that the inmates numbered 1,760 (808 males and 952 females). Owing to the reappearance of enteric fever, which has been endemic in this institution for many years, four samples of water from different parts of the house—namely, the kitchen of the infirmary, the general kitchen, the nurses' dining hall, and the superintendent's residence—were sent to University College for bacteriological examination. Professor A. E. Moore reported that inasmuch as the *Bacillus coli* was present in 10 c.cm. of water in all the samples submitted, the water supply must be regarded as unfit for drinking unless previously boiled. In these circumstances it is thought probable that the cases are attributable to the contaminated water supply. It is hoped that in time it may be possible to prevent or, at least, diminish in number the cases that appear sporadically by the segregation of "typhoid carriers" into special wards, but this would not be of much avail until the quality of the polluted water supply is improved. A member of the Hospital Committee stated that the Corporation had demanded the appointment of a Commission to inquire into the whole system of the city's water supply and also to consider the sewerage question. The report of the resident medical officer showed that the Corporation's demand was a proper one, and that it was the duty of the Government to appoint the Commission as soon as possible. Though the institution was next door to the waterworks, yet its supply was unfit for human consumption. That is a menace to the health of not only the 2,000 patients in the asylum, but to the 80,000 people of Cork. The Committee directed that the report should be sent to the Waterworks Committee and the Public Health Committee of the Corporation.

### VITAL STATISTICS OF THE IRISH FREE STATE.

The Registrar-General in his report for the quarter ended March 31st, 1922, states that there were registered during the quarter in the Irish Free State, comprising 649 registrars' districts, 14,890 births; 7,791 were boys and 7,099 girls, the total being equivalent to an annual rate of 18.8 per 1,000 of the estimated population. This rate is 2.7 below the average for the first quarter of the preceding ten years, and 0.5 below that for the first quarter in 1921. The deaths registered during the quarter, numbering 13,719, of which 6,875 were of males and 6,844 of females, are equivalent to an annual rate of 17.4 per 1,000 of the population, being 1.9 under the average for the first quarter of the preceding decennium, but 1.3 above that for the first quarter of the year 1921. Amongst the causes of deaths the following are mentioned: enteric fever, 24; typhus 3, small pox 0, measles 116, scarlet fever 22, whooping-cough 66, diphtheria 118, dysentery 2, and diarrhoeal diseases 114. Of the 13,719 deaths registered during the quarter 1,166, or 8.5 per cent., were those of infants under 1 year of age, and 6,206, or 45.2 per cent., were of persons aged 65 years and upwards. The number of deaths of infants was equivalent to 78 per 1,000 births registered, as compared with 69 for the fourth quarter of 1921, 79 for the third, and 57 for the second quarter.

## Correspondence.

### THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—The chief points generally relied on to distinguish varicella from variola and varioloid are the following:

(*a*) The distribution of the eruption, which is found most abundantly on the trunk, and more thinly on the face and hands.
(*b*) The absence of the eruption from the palms, soles, and palate, especially in young children.
(*c*) The absence, or short duration, and unimportant character of the pre-eruptive stage.
(*d*) The absence of umbilication of the vesicles in the earlier stages of the eruption.
(*e*) The absence of a pre-eruptive rash.

All these distinguishing characteristics, however, may fail, and leave one in perplexity; for in many cases, especially in those in which the eruption is scanty, the distribution on the face and extremities is much the same as that on the trunk. Also sore throat, which is nearly always present in variola, even in the mildest cases, may appear in varicella, accompanied by an outbreak of papules. As to umbilication, in a considerable number of cases of undoubted variola, it is not found at any stage of the eruption; while a slight amount of umbilication may be seen in varicella, when the pock attains a moderate size. Again, in varicella a pre-eruptive stage may occur, which is quite undistinguishable from that of variola.

Other important points which may enable one to decide the diagnosis in favour of varicella are the absence of lumbar pain, the presence of one or more elliptical or oval vesicles, the continued fever after the appearance of the eruption, and the fact that the vesicles collapse on being punctured in one spot only, thus showing that they are unilocular.

There are two signs, however, which are perhaps more reliable than any of these mentioned, and it is to be regretted that more attention has not been drawn to them. They are:

(*a*) The early vesiculation and crusting of the papules, which may occur in so short a period as thirty-six hours.
(*b*) The contemporaneous presence of papules, vesicles, and crusts on various parts of the body.

This early crusting, invariably seen in varicella and never observed in variola, and the contemporaneous presence of papules, vesicles, and crusts, only found in varicella, ought to have assigned to them the chief place in the list of differential diagnostic signs.—I am, etc.,

Driffield, E. Yorks, Oct. 22nd. A. T. BRAND, M.D.

## THE HEALTHINESS OF BRITISH HONDURAS.

SIR,—In your issue of July 15th, under "Medical Notes in Parliament," the following statement occurs:

"Dr. Fremantle in his speech instanced the case of British Honduras as illustrating the evil results of the neglect of good advice. Seventeen years ago the late Sir Rubert Boyce had, as a result of a visit to British Honduras, described the extraordinary insanitary conditions existing and the prevalence of the stegomyia mosquito, involving the danger of outbreaks of yellow fever. Nothing was done, but outbreaks of yellow fever occurred, the most recent only last year."

It is to be regretted that such an authoritative statement should be incorrect. From the date of Sir Rubert Boyce's visit in 1905 no outbreak of yellow fever occurred in British Honduras until 1921.

In 1905 the outbreak occurred in Belize, a town of over 10,000 inhabitants, through which passes all the overseas trade of the colony. It was confined to about twenty cases and was stamped out in six weeks. This was characterized by Dr. J. N. Thomas of New Orleans, one of the leading men of the United States Public Health Service, as one of the finest pieces of work he had seen.

Last year the outbreak took place at a large secondary college about one mile from Belize. Seventeen cases occurred there, but the epidemic was stamped out in sixteen days. Although the epidemic reached the town only three cases occurred there. Surely one might arrive at one of two deductions, either that the "extraordinary insanitary conditions" do not exist, or that the public health service is "extraordinarily" effective.

As a matter of fact, British Honduras is extraordinarily free from infectious diseases. Notwithstanding the fact that plague, yellow fever, small-pox, alastrim, typhus, typhoid, and diphtheria have all been found amongst our nearest and most intimate neighbours, we have managed to keep them all at arm's length with the single exception referred to.

British Honduras is a much-maligned colony, but undeservedly so as regards its health conditions. I have lived here for over twenty-five years, and have only on two brief occasions been off duty on account of ill health, and there are not a few foreigners who can relate the same history.—I am, etc.,

Belize, Sept. 26th. JAMES CRAN, M.D.,
Acting Principal Medical Officer.

---

## CARDIOLOGY.

SIR,—I feel that your reviewer's comment upon my letter, under the above heading, calls for some response from me; it should make our respective positions clearer. He is in agreement with me that the volume changes in the internal jugular are determined by pressure changes, and I am in agreement with him that the instrument which records the venous waves does not measure the actual attendant pressure values within the vein; but then I did not claim that it did. To do this it would be necessary to occlude the vessel entirely, as in the use of the sphygmograph the artery is occluded.

I think, further, that we shall be in agreement that, *ceteris paribus*, the magnitudes of the venous waves should be directly proportional to the forces (pressures) which develop them. Unfortunately we cannot secure this equality of conditions: and thus whilst, from this point of view, we can more readily compare together the "*a*" and "*v*" waves, because they are both determined by pressures operating *within* the cavities of the heart and are accompanied by volume changes *within* the vein, as already described, we cannot so compare the "*c*" wave with either the one or the other. The reason for this is that the "*c*" wave is generated from *without* by the impact of the carotid pulse upon the internal jugular, whereby its contents are thrown into oscillation. No question arises here of volume changes due to afflux (the venous flow being held up) or to actual reflux from the heart. The genesis of this wave being so dissimilar it is extremely difficult to see how it and the "*a*" and "*v*" waves can be standardized, so to speak.

The issues involved in the problem of the interpretation of the venous pulsations are, I think, much more complex than has been generally accepted, and for this reason I have elsewhere ventured to suggest that the whole subject, including the nomenclature of the waves, should be reconsidered.—I am, etc.,

London, Oct. 23rd. HARRINGTON SAINSBURY.

## PSYCHO-ANALYSIS.

SIR,—Having been during all my professional life much interested in all neurological and psychological questions, I have dipped frequently, like Dr. McBride, into the literature of this subject, and must confess that to me it has an unsatisfying character.

I do not specially refer to the nauseating aspect which would give sex such a prominent part, and indeed probably the most prominent part, in the thoughts and conduct of most of us, but I refer at present more especially to what Sir Clifford Allbutt mentioned in his recent lecture. Some of the writers and practisers of psycho-analytical methods use too seldom the ordinary language of the physical, anatomical, and physiological sciences, and use much more freely indefinite and abstract language of metaphysics, with the result that it is difficult to get a clear concrete idea of what exactly they mean.

It seems to me that there are facts that if not altogether forgotten by some of them are not sufficiently emphasized. I refer to such facts as that the brain is the organ of mind, that the mind only shows itself by the action of the brain, that the brain is an organ having a physical and anatomical construction capable in health of physiological activities, and when diseased of activities depending on the pathological modifications of its physical and anatomical construction and usual physiological activities.

We have such terms as repression, idea complexes, censors, instincts, wishes, conscious, subconscious, etc., introduced without it being sufficiently borne in mind that the processes or activities of the brain on which these depend have a physical basis. It has always appeared to me that unless one has an idea of the physical, anatomical, and physiological basis underlying these terms much of the discussions of the subject, I will not say is jargon, but words—words!

I do not in the least wish to detract from the good work which can be accomplished by psycho-analysis in the way of treatment because I know how successful it has been in many cases and especially since the war, what a scope there is for such work, and in spite of their methods how great the number of poor souls there are still waiting for an even more successful method of cure than psycho-analysis has proved to be.

Perhaps some of the successful cures have been too readily attributed to the fact that after much probing into the subconscious the practitioner has managed to fish up something which he considers was the initial cause of the disorder which he set out to treat. One must, however, recognize that there is hardly any form of treatment which is so capable of "suggesting" to a patient that he is likely to be benefited by it as psycho-analysis. The long sederunts at intervals, the questionings, the probings, and at last the discoveries by the practitioner of what the patient himself even had forgotten, are all calculated to produce an atmosphere of "suggestion" that he will be benefited. And he benefits accordingly. Whilst many of the cures may thus be brought about by suggestion, I do not by any means imply that all are, and if the psycho-analysts would emphasize more the physical, anatomical, and physiological basis subserving their methods they would, I think, not only place their practice on a more certain scientific basis but establish more securely some of the truths underlying their methods.

It is not possible, of course, with our present knowledge to understand many mental phenomena which in the gradual advance of science may probably fully be accounted for by the physical and anatomical construction and the physiological and pathological activities, past and present, of the human brain. Probably it is not possible fully to account for such processes at present as repression, coming into consciousness, complexes, etc., from the physical side, but I believe a working hypothesis could be developed on the lines of what has been done by investigators on the disorders of speech, memory, etc. These, of course, are of a simpler and more localized kind than many of the neuroses, neuropsychoses, and psychoses with which the psycho-analysts have been concerned.

In the paper by Dr. Crichton Miller, read at the Glasgow meeting, I was glad to see psychology considered in one direction on the lines of what I mean when he showed some of the effects the internal secretions of the endocrine glands or their absence may have in activating or biochemically acting on special organs or on specialized cells of the body and brain. Such localized or special action on picked out cells, or groups of cells, may profoundly alter the nature and

conduct of an individual. Although we may not know the why and wherefore of the action of these glands, the terms used to describe the process are fairly understood, because they are those of physics, chemistry, anatomy, and physiology.—I am, etc.,

Leith, Oct. 22nd. WILLIAM ELDER, M.D., F.R.C.P.E.

---

SIR,—It is a matter for regret to find from Dr. McBride's letter in your issue of October 14th (p. 704) that he did not obtain the information he expected from the replies to his previous letter on August 12th.

Really, the subject to be thoroughly understood requires discussion and the test of practice, which is best undertaken at one of the teaching clinics. If Dr. McBride has the leisure to follow this course he will find the subject of psycho-analysis and the psychological basis on which it rests cleared of the difficulties which now present themselves. He will also learn that this method of treatment is not claimed to be a perfect therapeutic weapon, and that, in its present form, it has its limitations. Even so a greater measure of success has attended its use than can be claimed for any other method of treatment.

Dr. McBride refers to Sir Clifford Allbutt's address at St. George's, which he hopes will call for a defensive reply. I hope it will. It has been stated that the time required and the expense militate against the practice of psycho-analysis. I think Dr. McBride will agree there are many diseases in the domain of medicine in which the treatment is both protracted and expensive. Just now there is a wave of criticism adverse to psycho-analysis and its foundation which will do good by ventilating certain aspects of these subjects.

The majority will agree with Sir Clifford Allbutt that the mental investigation of children by their teachers may be most harmful, and the admission of crime as a pathological condition would tend to defeat the ends of justice. Rather let the teacher be trained to detect abnormalities in the child so that suitable skilled treatment may be undertaken sufficiently early—which, in itself, would eliminate pathological crime to a large extent—and leave the criminals in the hands of his judges, who always exercise their prerogative in favour of the accused where circumstances allow.

Sir Clifford's reference to the mind as a pint pot brings forth the obvious reply that we are not concerned with the quantity of the psychic content but with its quality—it may be a dangerous mixture liable to explode.—I am, etc.,

Ministry of Pensions Hospital, Hednesford, Staffs, Oct. 18th. JAMES W. W. ADAMSON, M.D.

---

SIR,—When psycho-analysts discuss the subject with sceptics there always seems to be a certain vagueness, and also a more or less implied suggestion of want of understanding on the part of their opponents. This tendency seems to be present in Dr. Steen's letter, although, as one would expect, it is veiled by exquisite courtesy.

However, he has chosen certain works as guides, so in order to keep this letter within reasonable dimensions let us consider the views of Freud upon dreams. This is all the more fitting as that author himself has written (*Interpretation of Dreams*, p. 483): "At any rate, the interpretation of dreams is the *via regia* to a knowledge of the unconscious." Now, as the unconscious seems thus to be the foundation upon which psycho-analysis is built, it is fair to assume that if this foundation be shaky the whole structure is in danger of falling. It is unnecessary to remind Dr. Steen that Freud's views as to "dreams, wit, folklore, ethnology, myths, aesthetics, the science of religion," and, he might have added, symbols, rest upon the theory of an unconscious mind which acts as a storehouse for—shall we say?—suppressed knowledge.

This being so, the first question an intelligent student of the work will ask is, "How am I to reconcile this theory with known physiology?" Probably he visualizes ordinary thought as a change in certain brain cells due to some stimulus—visual, auditory, or sensory. He assumes the action of nerves and nerve cells, followed by rest and recuperation, but how is he to explain to himself the unconscious mind in the Freudian sense? As the difficulty can thus be stated in comparatively few words, perhaps Dr. Steen will either be able to remove it in like manner or by mentioning some work in which it is clearly explained. I have read Jung's recent book on the unconscious, but have again only found assumption where I had hoped for reasoning.

Another question arises. Apparently this storehouse of unconscious thought has within it a hidden knowledge of symbology which the interpreter freely utilizes in explaining dreams. How does he know that what he elicits from the patient, and assumes to come from the unconscious, is not suggested to him in some way, and why does he assume that it has had anything to do with his dreams?

It would take up too much of your valuable space to consider Freud's views seriatim, but I may be permitted to state that so far as I can gather the following points are insisted upon by that author:

1. The dream is not what it seems to be.
2. One person may represent another or several persons.
3. Something which appears quite unimportant is really the most important thing.
4. A thing may stand for its opposite.
5. We have to be guided by the symbols to which reference has been made.

It may be mentioned that these symbols are generally supposed to be sexual—most long objects represent the male organ, most short ones the female genitalia, and rhythmic motions, such as climbing and riding, coitus.

I may conclude by a quotation:

"We have already asserted elsewhere that dreams which are conspicuously innocent invariably embody coarse erotic wishes, and we might confirm this by means of numerous fresh samples" (p. 241, Freud, op. cit.).

From what we have thus gleaned from the work which Dr. Steen specially recommends for study to the budding psycho-analyst it would not be unjust to infer that a dream may be made to mean almost anything. Fortunately, most readers of this discussion will have had many dreams, and so this aspect at least may be left to the decision of those who incline to attune their beliefs to the dictates of common-sense.

I feel that I have already occupied too much space and shall content myself by congratulating Mr. Arthur Lynch on his very pertinent criticism, which, coming from an author of his well-known attainments, proves that psycho-analysis does not always appeal to intelligent minds. With regard to Mr. Bryan's strictures: the onus of proof that there is any difference between psycho-analysis and the confessional rests with him and those who share his views. Why should disciples of Freud refuse priests access to that very dubious thing which they call "the unconscious mind"?—I am, etc.,

Harrogate, Oct. 22nd. P. MCBRIDE.

---

## BACTERIOLOGY AND THE VACCINE TREATMENT OF CHRONIC BRONCHITIS.

SIR,—Dr. Leonard Mackey in his helpful article on the "Bacteriology and vaccine treatment of chronic bronchitis" in your issue of October 21st (p. 715) has suggested that rhinologists "could throw light on the real nature of the associated nasal infections, and suggest some useful local treatment."

Dr. E. Rist, as reported in the same issue, draws attention to the connexion between chronic infection of the upper air passages and chronic cough and symptoms simulating incipient tuberculosis. I would go further and submit that, quite apart from infected air sinuses, enlarged turbinates, adenoids, etc., chronic naso-pharyngeal catarrh sets up, in certain people, a condition that lowers their vitality and makes them more susceptible to succumb to tuberculous and other infections. Among such sufferers can be included many medical practitioners, especially those in industrial districts. Various nasal operations, autogenous vaccines, nasal douches and sprays may be tried in vain, and the condition persist, bringing in its train troubles such as rheumatoid arthritis and the like.

Much work, I know, has been done in connexion with the naso-pharyngeal flora, but it seems that very little progress has been made in the local treatment of this condition. What would be much appreciated is a communication on the subject by some eminent rhinologist, giving the various forms of treatment and the degree of success that can be looked for in each.—I am, etc.,

Edinburgh, Oct. 23rd. W. GOLDIE.

---

## UNSUSPECTED PREGNANCY.

SIR,—Would Dr. Graham Grant consider the following case one of unsuspected pregnancy?

On February 23rd, 1921, I was called by telegram to a woman five miles away; it was the usual "come at once" message, and I went. I was somewhat disgusted, therefore, to find on arrival that the patient—a woman—was sitting by the kitchen fire looking far from ill. I inquired the reason for the telegram, and was

informed by her that she had a "cold." When she stood up I saw at once that she was about full term in pregnancy. Her symptoms of a "cold" were pains in the back and abdomen; and when I remarked that I thought it was probably the commencement of labour she was most indignant and said, "That's what my husband says, and it's nothing of the sort." Her husband and her aunt had both incurred grave displeasure by making the correct diagnosis some time previously, but the patient had refused to allow any such possibility, and would get quite angry at the idea. There was no question as to the genuineness of her belief that she could not be pregnant, for she had made no arrangements—no baby clothes, and had no other bedroom nor bedclothes prepared.

I examined her and found labour well started, and I told her that it was a fortunate thing that everybody who had a "cold" had not her symptoms. Six hours later the child—rather on the large size—was born. Just when the head was crowning her aunt came up to say that the nurse was wanted elsewhere. I told the nurse that she could not possibly go till the case was over, whereupon the patient half raised herself in the bed and looked over her shoulder and remarked, "Can I be of any assistance?"

This patient was living with her husband, had been married about a year, and could not by any chance be said to be dull-witted. She is a tall woman, and her menses had ceased in the ordinary way. I said to her that I could not understand how she did not know that she was going to have a baby, that she must have known that a young married woman would naturally expect such a possibility, especially when her abdomen began to get large. To this she replied, "Well, I was brought up by a step-mother, and I don't think that she took quite such an interest in me that my own mother would have done."

I am afraid that Dr. Graham Grant will think I am pulling his leg, but this is not an American tall story—just the literal truth of what actually happened. The unfortunate woman was unmercifully chaffed by her neighbours, for of course the story became "broadcasted," as such happenings do in the country.

The interesting thing will be to see how "the child imposes on the man"; this child cannot be affected by any of the usual fears and introspections which occur in the average expectant mother.—I am, etc.,

Newick, Oct. 20th. J. CHARSLEY MACKWOOD.

---

SIR,—May I contribute an experience of a few years ago?

In response to a telephone message announcing an unexpected birth I reached the patient about 7 a.m. and found that she had delivered herself half an hour previously, not only of a full-term living child, but of the placenta. Absolutely nothing had been done for mother or child before I arrived. The one and only pain had occurred a few minutes before the birth, when, wakened by it, she roused her sister to prepare some hot milk to relieve what she called cramps in the inside. When the sister returned with the milk the child was born and I was sent for. She assured me that she had never suspected pregnancy. Neither had her sister, who had shared her bed for months previously, nor any of the other members of the household. The menses had been regular, and there were no pectoral or abdominal developments noticeable. This is the truth, but, alas! not the whole truth. My patient was unmarried—a much-appreciated servant in a respectable family, and the startling surprise of that morning filled them with disappointment and mortification.

When I mentioned this case to some of my colleagues they listened courteously, suffered me patiently, but pitied my credulity. The girl's mistress was Christian enough not only not to cast a stone at her sister-woman but to take her back to service in the course of a few weeks.

The question is, Should we discredit a tale of unsuspected pregnancy except in those cases where the woman prudently shrinks from the burden of maternity unless she has the moral support that is afforded by the wedding ring?—I am, etc.,

Belfast, Oct. 14th. WILLIAM L. STOREY.

---

SIR,—I remember telling a patient of mine a story of my dog, considered by me a remarkable animal, and the lady replied: "Oh, that is nothing! Our dog, being too big to get into a mouse hole, fetches the trap and, having seen that the cheese is all right, places it carefully just where the mouse must see it and sits himself down to wait." I said, "Thank you very much for the lesson. Good-day."

I feel I have to repeat this contrite observation to Dr. Lewis in view of his "true tale" of the twins (it will be triplets next week, I expect; then Heaven help me!), because I do not desire to get myself further disliked by advancing suggestions which might give offence. It is abundantly clear that I have failed to profit by my experience of nearly 3,000 cases, and I must therefore admit that the words "*Verb. sap.*" do not apply to me. If the Editor of this JOURNAL wishes them to apply to him he will be well advised to close this correspondence before we have to deal with a quadripara.—I am, etc.,

London, W., Oct. 20th. GRAHAM GRANT.

*** We are disposed to accept Dr. Graham Grant's advice, but not for the reason he gives.

---

## DANGEROUS DRUGS ACT, 1920.

SIR,—It is well known that in the past the sending of missionaries to unexplored regions has been encouraged, and large sums of money contributed for the purpose by men whose object was not the improvement of the heathen, but the acquisition from them of ill-gotten wealth. Similarly traders of an unscrupulous character are continually making "cat's-paws" of well-intentioned people to enable them to oust competitors and increase their own profits from trade of a pernicious kind. Some years ago there was vigorous agitation in favour of measures to put a stop to objectionable traffic in opium. I am quite convinced that this was largely fostered in the interests of an unscrupulous section of the persons engaged in that objectionable traffic, or interested in it. Now we have good people supporting legislation to suppress improper traffic in the so-called "dangerous drugs" (cocaine, etc.). I have little doubt that the same sort of influences are working secretly behind them, and behind the newspapers which have given so much of their space to the subject. The result, if I am any judge, is an increase in the misuse of cocaine, through the unprecedented advertisement given to the drug, and very large profits to traders of the worst types; and, at the same time, loss and inconvenience to honest and reputable traders and doctors. In conclusion, let me ask whence the General Medical Council derives its authority to give, or withhold, its "concurrence" with orders such as those recently issued by the Home Office?—I am, etc.,

Oakhurst, Lingfield, Oct. 20th. HUGH WOODS, M.D.

---

## DERMATITIS AMONGST CEMENT WORKERS.

SIR,—Recently I was called to see a man who was suffering from a generalized dry scaly eczema. The scales were abnormally large, some measuring 1 cm. square, and easily detachable. When removed a red, glistening, but dry surface was left. The disease started on the outer aspect of the right leg, just above the malleolus, and, when I first saw him, extended all over both legs and thighs. The upper limbs were both affected from the shoulders to the wrist, and painful fissures were present in the flexures of both upper and lower limbs. The back and chest were almost entirely covered, the head and neck comparatively free. Desquamation occurred rapidly, and when a hand was passed across the back a shower of scales fell off like chaff into the bed. The finger-nails were uneven and fissured. The condition yielded to treatment by liquor carbonis detergens and liquor plumbi fortis followed by olive oil inunction.

The patient was a foreman rough-caster and attributed his condition to working with cement, informing me that another workman—whom, however, I did not see—had the same complaint in a minor degree.

I have failed to find in any of the works and reports I have consulted any reference to cement as a cause of occupational dermatitis, and should be interested to hear if this has been described.—I am, etc.,

Glasgow, Oct. 16th. S. NORMAN DYKES, M.B., Ch.B.

---

## THE RADICAL PREVENTION OF VENEREAL DISEASE.

SIR,—Please permit me to explain to your correspondent, who blames my letter in your issue of October 7th for its insipidity, just how that came about.

Time was when I could be guilty of a spicy, stinging letter. The same might be said of Mr. Lloyd George. It applies with equal truth to my friend Mr. Bottomley. But I have been more fortunate than they. You, Sir, have taught me wisdom. Some six months ago I sent you a spicy, stinging letter on the same subject—the prevention of venereal disease. You courteously advised "postponement" of its publication. Time, aided by Gilbert and Sullivan, completed the lesson for me. I bow—humbly and gratefully—to your superior wisdom. Who should know better than the Editor of the BRITISH MEDICAL JOURNAL that spicy, stinging

sentences do not greatly advance the public good? Hence the comparative tameness of my later letter which you did publish.

Let us hope that Mr. Lloyd George—and Mr. Bottomley—will in time be equally fortunate. But of course allowances will have to be made for them. They have not the advantage—as I have had—of the kindly guidance of an experienced medical editor, free, gratis, and for nothing! Pressure of work doubtless must excuse Mr. Lloyd George if through neglect of his duty to Gilbert and Sullivan he has as yet not learnt that it is "*calm* deliberation" that "disentangles every knot." A stinging style creates a stormy atmosphere which makes calm deliberation impossible, whether in medical journals or elsewhere.

This, however, is digressing. My letter was never intended, as your correspondent hints, to discredit the fact, the beautiful fact, that disinfectants do disinfect. Are we for that reason to shut our eyes to the fact, the ugly fact, that calomel cream can never cleanse the dirty mind of a single sensual sinner? Your correspondent's other assertions must be left to others who are better able to deal with them.

Your correspondent "G.'s" criticism (October 14th, p. 706) is suggestive and very much to the point. He inquires whether I realize all that "a universally applied habit of unselfish thinking, practised every day in every way" would lead to. He sees that it would involve the reconstruction of society. Most certainly neither I nor anyone else realizes all that it would lead to. For example, how many see that it would also lead to as great a renaissance of science, art, and literature as the world has ever witnessed? For in these things the best and finest work is never inspired by a selfish motive. To what do we owe our knowledge of the fact that disinfectants do disinfect? Is it not the outcome of many an hour of patient, unselfish thinking done for our benefit by Lister and Pasteur?—I am, etc.,

Sheffield, Oct. 23rd. HERBERT CAIGER.

---

SIR,—During and just after the war I lectured on venereal disease to about 500,000 of our troops, including a fair number of colonial and overseas soldiers, both as units and in cadet training schools. Whenever I spoke to them I always appealed to their patriotism and put it up to them how much better they would be employed pumping lead into the Hun rather than lying in hospital and having "606" pumped into them. Practically on every occasion these words were greeted with acclamation and enthusiasm. I wish to protest most strongly against the imputation conveyed in Miss Ettie Rout's letter in your last issue (p. 777) that numbers of men deliberately allowed themselves to be infected with this disease to escape the firing line. I am not denying that among all the millions of men under arms there may have been an infinitesimal number who took this course in an attempt to save their skins; but from my experience, based on an enormous number of talks outside lectures with soldiers from all parts of the empire, I am absolutely certain that this particular cause of infection was practically negligible. I write this letter because I am very jealous of the fair fame of our soldiers.—I am, etc.,

London, Oct. 23rd. E. B. TURNER.

---

## ANIMAL EXPERIMENTS.

SIR,—You have published a letter from Dr. W. W. Keen, of Philadelphia, U.S.A., which directly challenges the "consistency" of our President, Dr. Hadwen, who is in America. I trust that you will not allow this challenge, obviously based on error, to remain uncorrected. Dr. Keen asserts that Dr. Hadwen "advocates" the law under which experiments on animals are performed in this country. That is false. He also states that Dr. Hadwen gives "unconscious advocacy" to the use of antiseptics by his supposed approval of the law. Dr. Hadwen does not advocate antiseptics, consciously or unconsciously. Like most advanced surgeons, he believes in *asepsis*, of which Lawson Tait, Granville Bantock, and Sir William Savory were pioneers, practising it in defiance of *antisepsis*, then fashionable.

Errors similar to Dr. Keen's are bound to be made by anybody who hastily concludes that "Mr. Coleridge and Dr. Hadwen" advocate the same things. Mr. Coleridge—who is the director of a society one-third the size of that to which Dr. Hadwen devotes purely voluntary service—"directs" his society by a policy totally opposed to ours. I take the opportunity of Dr. Hadwen's absence to state their relative positions, which ought to be known within the medical profession, although much misunderstood without.—I am, etc.,

B. E. KIDD,
Secretary, British Union for Abolition of Vivisection.

London, S.W., Oct. 23rd.

---

## POST-GRADUATE COURSES.

SIR,—I was glad to read your article on post-graduate courses (October 7th, p. 650). Any scheme which adds to the facilities for obtaining such instruction will, I am convinced, be of very great interest to a great number of us. But there are many of us who, having gone into practice in the near provinces, view with horror our gradual separation from the scientific, our gradual deterioration, fancied or real, into the "cold on the liver," "sick headache" type of diagnostician. Yet it is difficult for many of us to prevent this.

We are hard up, we have to work to keep our local tradesmen prosperous. We come home too tired or too slack to read. We cannot afford to spend a week or a fortnight away from our work. In other words, it is very difficult for us provincials to avail ourselves of the existing facilities, and we have none here. Our local hospitals are closed corporations, and do not teach. For the life of me I cannot see why. We have clinical meetings from time to time and enjoy them, but they do not follow the lines of a post-graduate course, and some of us, tied up in the afternoon, cannot attend even these.

I am certain something ought to be done for us, and my suggestions are as follows:

1. That every local general hospital be made a centre for post-graduate courses. Lectures and demonstrations to be given once a week in the evenings, the most suitable time being 5 to 6. Or
2. That post graduate classes be held once a fortnight in London on some special subject, necessarily in the evening, say from 6 to 7, or, if this is not feasible, in the afternoons.
3. That these courses be free, or as nearly free as possible.

The advantages to be accrued are obvious; I should be glad to hear the opinions of other "provincials."—I am, etc.,

October 14th. "AMBITIOUS."

---

# Universities and Colleges.

## UNIVERSITY OF CAMBRIDGE.

THE following candidates have satisfied the examiners in both parts of the Examination indicated:

D.P.H.—Marjorie Back, Muriel J. Brown, J. G. Campbell, J. Davidson, R. A. Forsyth, A. W. Gaye, Beryl Grieve, *J. G. F. Hosken, E. S. Macphee, D. R. Mehta, D. E. Morley, Edith M. Neilson, Sybil M. Nuttall, G. P. N. Richardson, T. E. Roberts, H. A. Ross, †G. M. Sanderson, H. E. Seiler, W. A. Werden, J. Young.

* Distinguished in the principles of Hygiene.
† Distinguished in the application of Sanitary Science.

*Diploma in Hygiene.*

The first examination for the Diploma in Hygiene, recently established by the University for foreign medical graduates, was held this month. The following candidate satisfied the examiners in both parts of the examination (with distinction in the principles of hygiene): Chung Hsin Han.

---

## UNIVERSITY OF LONDON.

A COURSE of eight lectures on the "Histology of the nervous system" will be given by Dr. C. Da Fano at King's College (Strand) on Wednesdays, October 25th, November 1st, 8th, 15th, 22nd, and 29th, December 6th and 13th, at 4.30 p.m. Attendance at this course is recognized in connexion with the B.Sc. (Honours) degree in Physiology. Admission is free without ticket.

### SCHOOL OF HYGIENE.

At a meeting of the Senate held on Wednesday, October 18th, the Vice-Chancellor (Mr. H. J. Waring, M.S., F.R.C.S.) being in the chair, a communication was received from the Minister of Health forwarding draft heads of agreement with reference to the School of Hygiene which is to be established as a school of the University under the donation of two million dollars made for the purpose by the Rockefeller Foundation. The agreement provides for the erection of suitable buildings on a site in Bloomsbury and the constitution of a board of management and a court of governors for the control and administration of the school. Resolutions were adopted expressing the concurrence of the University in the proposed scheme and the very great satisfaction with which the Senate learnt of the munificent contribution of the Rockefeller Foundation and of the intentions of H.M. Government with regard to the maintenance of the school.

## ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia of the Royal College of Physicians of London was held on Thursday, October 19th, at 5 p.m., the President, Sir Humphry Rolleston, being in the chair.

The modification of By-law CLXXVIII, passed for the first time at the last Comitia, was now passed for the second time. In consequence of this the by-law now reads as follows:

"No Fellow of the College shall be engaged in trade, or dispense medicines, or make any engagement with a pharmacist or any other person for the supply of medicines, or practise medicine or surgery in partnership, by deed or otherwise; or be a party to the transfer of patients or of the goodwill of a practice to or from himself for a pecuniary consideration."

The former text of this by-law was:

"No Fellow *or Member* of the College shall be engaged in trade or dispense medicines, or make any engagement with a *chemist* for the supply of medicines, or practise medicine or surgery in partnership, by deed or otherwise; or be a party to the transfer of patients or of the goodwill of a practice to or from himself for a pecuniary consideration."

(Words omitted or altered are printed in italics.)

The following resolution was passed for the first time:

"That By-law CXIV, which relates to candidates for the Membership, be repealed."

This by-law reads as follows:

"No candidate shall be admitted to examination who is engaged in trade; or who dispenses medicine, or makes any engagement with a chemist for the supply of medicines; or who practises medicine or surgery in partnership, so long as that partnership continues."

The following resolution was passed:

"That subject to the provisions of By-law CXC it is undesirable that any Fellow or Member of the College shall have any financial interest (whether direct or indirect) in any company or institution having for its object the treatment of disease for profit, other than the receipt by him from such company or institution of (1) a fixed salary, or (2) fees, for such services as he may render to such company or institution in his capacity of medical practitioner."

This is intended to replace the resolution passed by the College on October 25th, 1888—namely:

"That it is undesirable that any Fellow or Member of the College should be officially connected with any company having for its object the treatment of disease for profit."

The President then dissolved the Comitia.

## UNIVERSITY OF EDINBURGH.

AT the graduation ceremony on October 21st the following medical degrees and diplomas were conferred:

M.B., CH.B.—J. W. Anderson, F. Booth.
D.P.H.—Jean Murray.

## UNIVERSITY OF ABERDEEN.

THE Alexander Anderson Scholarship in Medicine, tenable for two years, has been awarded to Robert Cruikshank, M.B., Ch.B.

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

*Calendar for 1922–23.*

THE *Calendar*[1] of the Royal College of Surgeons of England for the current year has lately been published, and contains the usual information arranged upon the customary plan. The report of proceedings of Council shows that 52 diplomas of Fellowship (including 3 to women) were issued during 1921–22, and 394 diplomas of Membership (including 91 to women). The diploma of Fellowship by examination (with ophthalmology) was granted for the first time. The licence in Dental Surgery was issued to 194 persons (including 4 women), and the following are the numbers of diplomas granted jointly with the Royal College of Physicians: Public Health, 69; Tropical Medicine and Hygiene, 58; Ophthalmic Medicine and Surgery, 25; Psychological Medicine, 24. Mr. Charles Brook, of Lincoln, and Mr. William Coates, of Manchester (members of twenty years' standing), were admitted to the Fellowship without examination. The subject of the Jacksonian Prize Essay for the year 1923 is "The pathology and treatment of malignant disease of the testicle."

Reference is made in the report to the fact that the annual meeting of Fellows and Members summoned last year did not take place as the required quorum was not obtained. A report is presented on the irregular meeting held on that occasion after the President's withdrawal, and attention is called to Section XVII of the By-laws under which those holding an unauthorized meeting render themselves liable to suspension from privileges or removal from being a Fellow or Member.

The financial report states that the income of the College, exclusive of that from trust funds, amounted to £39,815, or £1,852 more than the previous year, and that the total expenditure in respect of revenue was £33 251, or £1,594 higher than in the previous year. The balance of the revenue account amounted to £6,563. The valuation of investments at June 24th last showed a considerable improvement. The Conservator's report has already been noticed, but we may recall that under the agreed terms of trust the Council of the College becomes responsible for the housing display, completion, upkeep, and cataloguing of the Army Medical War Collection, spoken of in previous reports under the title of "War Office Collection." The collection thus added forms an intrinsic part of the College museum, but the contents are at the disposal, for teaching purposes, of professors at the Royal Army Medical College, Millbank. When complete, it is estimated that the Army Medical War Collection will comprise 2,000 wet specimens and 500 dry specimens, besides drawings, radiograms, photographs, models, and casts. Before the end of the present year it is hoped to furnish the new quarters with cases stands, and begin the installation of the collection in the new accommodation under construction. During the present year Lieut.-Colonel R. H. Elliott has made an addition of great value to the Museum by his collection of eyes showing the lesions which may result from the operation employed by native practitioners in the treatment of cataract. The report on the library states that the *Lives of Fellows* compiled or written by the librarian, Mr. Victor G. Plarr, amounts now to 2,450; they are being fully indexed. The period covered is from 1843 to the present time.

[1] London: Taylor and Francis. 1922. Price 1s.

## ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT the meeting of the Royal College of Surgeons of Edinburgh, held on October 18th, Sir David Wallace, C.M.G., was re-elected President for the ensuing year; Dr. George Mackay, Vice-President; and Mr. Alexander Miles, Secretary and Treasurer.

The following 19 successful candidates out of 62 entered, having passed the requisite examinations, have been admitted Fellows:

P. M. Brodie, W. A. Brown, D. Buchanan, J. T. Carson, J. S. M. Connell, J. Daneel, E. L. Ferguson, H. L. H. Greer, C. R. R. Huxtable, Marjorie M. Jefferson, I. B. Jose, L. C. E. Lindon, G. A. Petrie, E. D. Pullon, B. S. Simpson, H. V. Tilak, V. N. Whitamore, J. L. Will, Ethel D. Willis.

Dr. Kandappah Rajah, having passed the requisite examination, has been admitted a Licentiate of the Royal College of Surgeons of Edinburgh.

## ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the Annual Stated Meeting of the President and Fellows, held on St. Luke's Day, October 18th, the following Members of the College were elected Fellows: Leonard Abrahamson, M.D.Univ. Dubl.; Joseph Warwick Bigger, M.D.Univ.Dubl.; Charles Dickson, M.B., R.U.I., M.D.Queen's Univ.Belfast.

The following officers for the coming year were elected:—President: Michael Francis Cox, Hon. M.D., R.U.I. Censors: Sir William J. Thompson, M.D.Univ.Dubl.; William Joseph Dargan, M.D., R.U.I.; John Speares, M.D.Univ.Dubl.; Richard Edward Tottenham, M.D.Univ.Dubl. Representatives of the College on the Committee of Management under the Conjoint Examination Scheme: Dr. Walter Smith, Sir John Moore, Dr. T. P. C. Kirkpatrick. Representative on the General Medical Council: Sir John Moore, M.D. Treasurer: Henry T. Bewley, M.D. Registrar: T. Percy C. Kirkpatrick, M.D. Librarian: Mr. R. G. J. Phelps. The President appointed Sir William J. Thompson to act as Vice-President of the College.

Additional examiners to take the place of an absent censor or examiner, examiners for the licence in midwifery, supplemental examiners under the conjoint scheme with the Royal College of Surgeons in Ireland, examiners for the Conjoint Diploma in Public Health, examiners for the membership, and the various collegiate committees were appointed. So also were the following examiners for the Conjoint Preliminary Examination:—In Languages: E. H. Alton, Fellow of Trinity College, Dublin. In Mathematics: Reginald A. P. Rogers, Fellow of Trinity College, Dublin. In Irish: Edward J. Gwynn, Fellow of Trinity College, Dublin.

The annual report of the library committee, recommending the publication of correspondence between Archbishop and Sir Patrick Dun, first president of the King and Queen's College of Physicians in Ireland, A.D. 1692, was adopted.

---

THE Denver city council (Colorado, U.S.A.) has set aside 20,000 dollars as a contribution from the city to the University of Colorado Medical School and Hospital, the establishment of which was made possible by donations from the Rockefeller and Carnegie Foundations.

A SANITARY conference of the South American Republics will be held in Montevideo in January, 1923. Among the subjects to be discussed will be the medical curriculum, and the best means of furthering scientific interchange in South America.

BY the will of Dr. W. S. Halsted (of whom an obituary notice appeared in our issue of October 7th, p. 663), the residue of his estate, valued approximately at 100,000 dollars, is left to the Johns Hopkins University, subject to the payment annually to his widow of 5 per cent. of the value of the legacy. The bequest is to be devoted to research in medicine, preferably in surgery, and is not to be used for buildings. The university is given the right to sell at its discretion any portion of the residue and to reinvest the proceeds.

# Obituary.

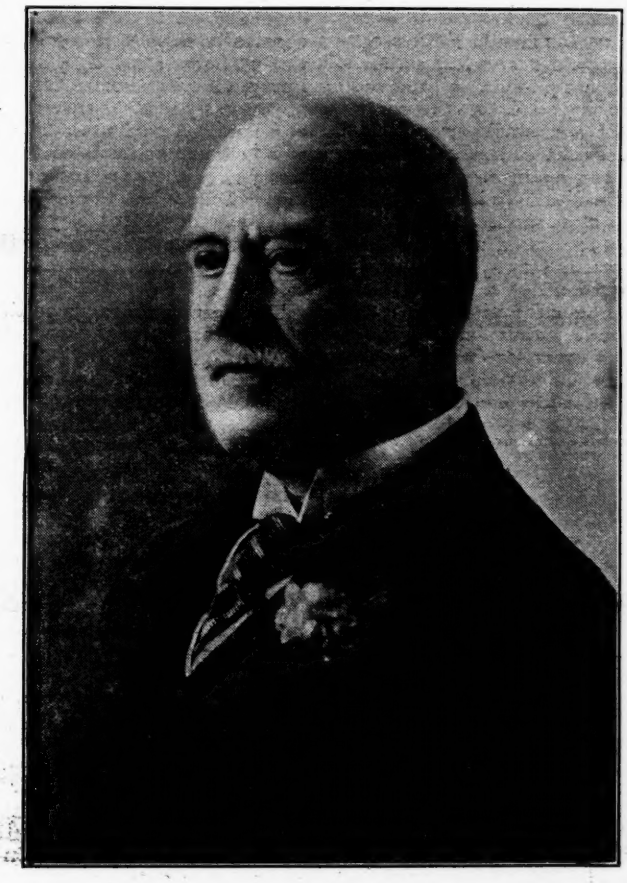
## SIR JAMES GALLOWAY, K.B.E., C.B., M.A., M.D., F.R.C.P., F.R.C.S.,

Consulting Physician to Charing Cross Hospital.

THE death after a short illness, due to the complications of renal calculus, of Sir James Galloway during his full tide of activity removes from the scene of medical life in London a figure prominent in many directions.

Coming of an Aberdonian stock, he was born at Calcutta in October, 1862, and on account of the age limit had resigned his post as senior physician to Charing Cross Hospital as recently as October 13th last. He received his early education at the Chanonry School, Aberdeen, and then proceeded to the university, where he took the degrees of M.A. (1883), M.B., C.M. (1886), and M.D. with highest honours (1892). His university gave him the honorary degree of LL.D. in 1919; he had taken the F.R.C.S.Eng. in 1889, and about this time had started work at the London Hospital, where he came under the influence of the late Sir Stephen Mackenzie, by whom he was imbued with the importance of dermatology as an aspect of general medicine—a subject on which subsequently he often wrote. For a time he was demonstrator of materia medica in the medical school of the London Hospital, but he was much more interested in pathology, and was soon appointed pathologist and assistant physician to the Great Northern Hospital. His industry, especially in the microscopic investigation of malignant disease, was early recognized by his appointment to give the Morton lecture on cancer at the Royal College of Surgeons in 1893; the lecturer in 1892 was the late Sir German Sims Woodhead, who preceded him into the valley of the shadow a little more than nine months ago. Galloway's Morton lecture on the "Parasitism of protozoa in carcinoma" reviewed the position of the subject, much debated at that time by Ruffer, Plimmer, and J. Jackson Clarke at the old Pathological Society of London, but with the wise caution that always characterized his judgement he left their causal relation an open question. That his outlook in pathology was wide is shown by a well-illustrated paper on syringomyelia read before the Pathological Society in 1891, and by another in 1894 on the bacteriological diagnosis of membranous inflammation of the throat based on eighty personal observations. In this year his long connexion with Charing Cross Hospital began by his appointment as physician to the skin department, where he worked until 1914, having in the interval passed up the rungs of the ladder as assistant physician (1901), full physician (1906), and senior physician (1913); in the medical school he filled various offices, the last being lecturer on medicine (1908–22). As examiner in medicine at the Conjoint Board, at the University of London, and for the Medical Service of the Royal Navy as a member of the Advisory Board for Army Medical Services his eminence as a general physician was justly recognized. Further evidence of the position he had achieved is shown by his appointment early in 1916 to be consulting physician with the forces in France; he served first in that capacity with the First and Second Armies (C.B. 1917), but a little later, when it became the practice to appoint a consulting physician to each army, he was attached to the Second, with which he continued to serve until his recall to London to take a share in the work of the Ministry of National Service. His special knowledge of skin diseases led to his election to be President of the Section of Dermatology of the Royal Society of Medicine in 1917, of the Section of Dermatology at the Birmingham Meeting of the British Medical Association in 1911. It was shown also by the honorary membership of the French and Netherland Dermatological Societies and by the articles that he contributed to works such as Quain's *Dictionary of Medicine* and Allbutt's *System of Medicine*. The wide scope of his interests included medical history, as evidenced by his scholarly articles, "The Story of St. Roncevall" (1907) and "Eleanor of Castile, Queen of England, and the monuments erected in her memory" (1908), published in the *Charing Cross Hospital Gazette*, and by his active participation in the work of the History of Medicine Section of the Royal Society of Medicine.

Galloway's judicious mind, broad outlook, and tact made him an admirable member of committee, and his services were therefore much in request; after the South African war he served on the important advisory committee for the Army Medical Services appointed by Mr. St. John Brodrick (now Lord Midleton) and after his return from France during the European war he was made Chief Commissioner for Medical Services, Ministry of National Service (K.B.E., 1918). At the Royal College of Physicians, of which he became a Fellow in 1897, he was Councillor (1916–18), Censor (1920–22), and in addition a member of the Board of Management of the Conjoint Examining Board in England; he thus had much to do with the new arrangements for the curriculum of medical studies.



*Photograph by]* SIR JAMES GALLOWAY. *[Lafayette, Ltd.*

Sir James Galloway became a member of the British Medical Association in 1891 and served it in many capacities. The first office he held was that of honorary secretary of the Section of Dermatology at the Annual Meeting in Montreal in 1897, and, as already said, he was president of that Section at the Annual Meeting in Birmingham in 1911. He was a member of the Council of the Metropolitan Counties Branch for many years, and was chairman of the War Emergency Committee established by that Branch in 1915. He became a member of the Central Council of the Association in 1914 and served in that capacity until 1918. He was a member at various dates of the Finance Committee, the Journal Committee, and the Hospitals Committee; he was also co-opted a member of the special committee of Chairmen of Standing Committees out of which the Central Medical War Committee evolved, as stated more at length below. One of the greatest services Sir James Galloway rendered to the Association was to take the chair at the Conferences of Representatives of the Medical Staffs of Voluntary Hospitals held under the auspices of the British Medical Association in London in 1920, 1921, and 1922. In the chairmanship of these conferences he exhibited a skill and power of suasion which contributed in no small measure to the success that attended them. The first conference was called at a time when members of voluntary hospital staffs were profoundly stirred by the grave financial position of the hospitals; it was summoned at such short notice on the action of the Government in appointing the Cave Committee, that its constituent members had little opportunity for a preliminary survey of the position and its probable effect upon the future, or of familiarizing themselves with the varied conditions of service in different parts of the

country. Yet under these difficult circumstances the conference was handled with a skill that made it as effective and businesslike as a Representative Meeting, where most of the representatives are practised in public business and all are familiar with an agenda prepared and discussed months in advance. That one day's work in December, 1920, gave the Association a sure basis for the evidence which it gave to the Cave Committee, much of which was accepted by that Committee and has since become the practice of the authorities. In later conferences new conditions brought new difficulties, which were met with equal success. Opinion on points of policy became more sharply defined, and therewith arose the probability of such acute controversy as might destroy the effectiveness of any conference. But with each new occasion the good humour, gentle playfulness, and imperturbability of the chairman brought out in response all that was best in the assembly to most practical purpose.

At the first conference, held on December 31st, 1920, resolutions were passed that the voluntary method of hospital administration should be maintained, that the hospitals should not be rate-aided, and that any Government grant should come through an intermediary channel, that every patient who was not a necessitous person should make a contribution towards the cost of his maintenance, and that a percentage of patients' payments should pass into a fund to be allocated at the desire of the honorary staff. At the second conference, on November 16th, 1921, a resolution was passed in favour of the extension of the services of the hospitals to private paying patients, and it was again resolved that a percentage of payments made by patients to hospital maintenance should be passed into the staff fund. At the third conference, on March 22nd, 1922, a resolution was passed to the effect that the essence of the voluntary system was the independent and voluntary management of a hospital and was not necessarily related to the conditions of service of the medical staffs; the formation of staff funds from a percentage of patients' payments was again approved; and a resolution was passed that the tenure of office of members of the honorary staffs of voluntary hospitals should, where necessary, be modified to allow more and younger practitioners to obtain responsible hospital experience. It will be remembered that the whole matter arising from the resolutions passed at this series of conferences was placed before the Representative Meeting at Glasgow last July, where important decisions were arrived at. During the course of the staff conferences Sir James Galloway took occasion to point out the great benefit afforded to the representatives of the medical staffs of voluntary hospitals by the opportunity of meeting together at such conferences, which were the only chances of consulting on important principles of hospital administration, and the value of the organization of the Association in calling the conferences and making their recommendations effective.

How great is the indebtedness of the profession to Sir James (then Dr.) Galloway in the inception and successful organization of the Central Medical War Committee is known probably to few. From him came the proposal at the Council meeting of the British Medical Association in January, 1915, that a committee of the Association should deal with matters arising from the withdrawal of medical men from civil practice to serve with the military forces. In April of the same year Dr. Galloway became chairman of the War Emergency Committee of the Metropolitan Counties Branch Council, the forerunner in work and ideas of the Central Medical War Committee. Through him the Council of the Association was led to vote money for the purpose of carrying on the work; and when in July, 1915, the War Emergency Committee for England and Wales was appointed Dr. Galloway became a representative of the Council on that body. In this capacity his services were of the greatest value owing to the insight that he had obtained into War Office methods, and the friendships he had formed while serving on the Advisory Committee for Army Medical Services, appointed after the South African war. When early in 1916 Dr. Galloway went to France as consultant with the forces his assistance was temporarily lost to the Central Medical War Committee. Towards the end of 1917 he was brought back to become Chief Commissioner of Medical Services in the Ministry of National Service, which assumed charge on November 18th, 1917. In this capacity Sir James Galloway continued in sympathetic co-operation with the Central Medical War Committee, referred to it all the important questions with regard to medical service which the Ministry had to decide, and frequently attended its meetings himself. Thus it was to the quiet perseverance, unfailing tact, and calm judgement of Sir James Galloway that the Central Medical War Committee largely owed its origin. In the more difficult periods of the Committee's career, Sir James's intimate acquaintance with the Medical Department of the War Office and its chiefs helped to maintain friendly relations; and in the last year of the war, as Chief Commissioner of Medical Services, he held the balance between the efforts of the Central Medical War Committee to maintain sufficient medical attendance on the civil population and the demands of the War Office for additional medical officers.

SIR HUMPHRY ROLLESTON, K.C.B., President of the Royal College of Physicians of London, writes:

Association for many years and in various circumstances, such as committees, examinations, and more recently at the College of Physicians, where his services as a member of the committee of management were of great value, only strengthened the early impression that Galloway was in every respect a most desirable colleague. He could always be depended on to do his share, and often more, of the work—cheerfully, calmly, thoroughly, and with a punctuality sometimes almost startlingly exact and always without obvious hurry. A clear-headed and wisely cautious adviser, he was most kindly in his judgements and slow to express disapproval of others. A good proof of the general esteem in which he was held can be found in the amount of devoted help he so freely gave as "a doctors' doctor." With a genial and unselfish disposition he had the highest ideals of life, and these were so quietly followed that they seemed, as indeed they had become, a natural characteristic of the man. His premature death leaves a gap which it will indeed be hard to fill.

To a former colleague on the Medical Staff of the Ministry of National Service we are indebted for the following tribute:

Of the senior officials of the Ministry of National Service none was regarded with more admiration and personal affection by his colleagues and subordinates than Sir James Galloway, the Chief Commissioner of Medical Services. As the head of perhaps the most pivotal department of a Ministry whose main function was to restore public confidence in the fairness of official dealing with the problems of recruiting—medical and other—he was pre-eminently the right man in the right place, for he commanded alike the confidence of the general public and his own profession. In addition to a wide knowledge and experience of general medicine he brought to his work in the Ministry an intimate acquaintance of the medical aspects of recruiting, while his previous active service in South Africa and in France had given him a first-hand knowledge of army medical organization and requirements. He was thus exceptionally fitted to hold the balance between the ever-conflicting interests of the medical needs of the civilian population and the demands made by the Navy, Army, and Air Force for medical officers. As regards recruiting, the disappearance of the unsatisfactory R.A.M.C. "categories" and the establishment of the M.N.S. "grades," based solely upon the physical condition of the recruit, was a far-reaching improvement. Galloway put an immense amount of thought into the Instructions to Medical Boards regarding the points which were to determine grading, and the resulting document will remain as a monument to him and to the experts whom he consulted. The sectional system of examination by which each recruit was examined by two or three examiners was another improvement introduced by him, and one which went far to establish confidence in the public mind. The extent to which Galloway's personal qualities affected the work of his department to its farthest ramifications is known only to those closely associated with him in it, but it may be safely said that it is in no small measure due to him that there was brought into being a practical and scientific method of medical examination of recruits, superior to anything previously known, which remains ready for immediate application should a similar emergency unhappily arise. In all the turmoil of conflicting currents of social and professional prejudices and political strivings Sir James Galloway maintained an unruffled serenity. He had two great qualities of leadership—the power of detachment, which enabled him to keep a broad outlook over his work as a whole while at the same time he was fully acquainted with details, and the capacity to devolve his work to his staff. He made it a rule to keep his own desk free from papers, and the quiet tidiness of

his room was an index to the mind of its occupant, who, however much pressed by affairs, could always make time to bring his clear and sound judgement to bear upon the problems which were perplexing his officers. In the brief leisure of these strenuous months, at meal times and in travelling, Sir James was the most charming and genial companion, enriching his conversation from the stores of his historical and antiquarian knowledge. He won and held, as such a man could not fail to do, the loyalty and devotion of his staff, all of whom will feel a sense of personal loss in his death.

A largely attended memorial service was held in the Church of St. Martin-in-the-Fields, Trafalgar Square, on Saturday, October 21st. The Rev. H. R. L. Sheppard, assisted by the Rev. A. W. Oxford, M.D., and the Rev. M. Griffiths, officiated. The service included the hymns "O God, our help in ages past," and "Abide with me," and Psalms cxxi and xxiii. After reading the lesson Dr. Oxford gave a short and deeply impressive eulogium, more especially of Sir James Galloway's work for the patients at Charing Cross Hospital. Among those present, besides Lady Galloway and members of the family, were Sir Humphry Rolleston, President of the Royal College of Physicians, Sir William Thorburn, representing the Council and Court of Examiners of the Royal College of Surgeons, Sir Frederick Mott, Sir James Dundas-Grant, Sir Charles Ballance, Sir Herbert Waterhouse, Dr. William Hunter, Sir James Cantlie, Dr. Arnold Chaplin, Dr. J. A. Ormerod, Dr. Raymond Crawfurd, and Sir James Porter, together with the vice-chairman of Charing Cross Hospital, and many members of the resident staff, nurses and students. The British Medical Association was represented by Dr. N. G. Horner, Assistant-Editor, British Medical Journal, and Dr. A. D. Macpherson, Assistant Medical Secretary.

---

Lieut.-Colonel Patrick Murphy, Bombay Medical Service (retired), was killed in the sack of Smyrna by the Turks on September 13th, aged 78. He was educated at Queen's College, Cork, and graduated M.D. and M.Ch. at the Queen's University, Ireland, in 1868. He entered the I.M.S. as assistant surgeon on October 1st, 1869, became surgeon lieutenant-colonel after twenty years' service, and retired on January 17th, 1895. He served in the Egyptian war of 1882, when he was present at the battle of Tel-el-Kebir, and received the medal with a clasp and the Khedive's bronze star.

## The Services.

### INDIAN MEDICAL SERVICE.

*The New Director-General.*

The term of office of the present Director-General of the Indian Medical Service, Major-General Sir William Edwards, K.C.I.E., expires in January next. As his successor has been appointed Colonel Robert Charles Macwatt, C.I.E., the senior colonel on the establishment. Colonel Macwatt was born on January 22nd, 1865, the son of Dr. Robert Charles Macwatt, of Dunse, Berwickshire, so will be 58 when he takes up his new post. He was educated at Edinburgh University, where he graduated M.B. and C.M. in 1886 and B.Sc. in 1897, subsequently taking the F.R.C.S.Eng. in 1911. He entered the I.M.S. as surgeon on October 1st, 1887, became major after twelve and lieutenant-colonel after twenty years' service, and attained the rank of colonel on January 8th, 1918, when he was appointed Inspector-General of Civil Hospitals in the Punjab, the post which he still holds. Almost all his service has been spent in the political department in Rajputana, under the Indian Foreign Office, where he has held the posts of Agency Surgeon successively in Haraoti and Tonk, Kotah, and Jhallawar. In June, 1907, he became Residency Surgeon of the Western Rajputana States, and in November, 1913, of the Eastern Rajputana States; while in September, 1914, he was appointed Chief Medical Officer in Rajputana and Civil Surgeon of Ajmir. He served on the north-west frontier of India in the Hazara campaign of 1888, receiving the frontier medal with a clasp; in the Lushai campaign of 1889 on the north-east frontier (clasp); and again on the north-west frontier in the Hazara and second Miranzai campaigns of 1891, getting a clasp for each. He received the Kaisar-i-Hind medal of the first class on January 1st, 1908, and the C.I.E. on January 1st, 1916, and on March 22nd, 1921, was appointed Honorary Surgeon to the King.

### MEMORIAL TO LIEUT.-COLONEL E. M. WILSON.

The memorial to the late Lieut.-Colonel E. M. Wilson, C.B., C.M.G., D.S.O., R.A.M.C., will be unveiled on Friday, November 3rd. A short service will be held by the Right Reverend Bishop J. Taylor Smith, C.B., C.V.O., D.D., Chaplain General to the Forces, in the chapel of The Queen Alexandra Military Hospital, Millbank, at 4 p.m. Lieut.-General Sir John Goodwin, K.C.B., C.M.G., D.S.O., K.H.S., Director-General, Army Medical Services, will perform the unveiling ceremony. All ranks of the Royal Army Medical Corps are invited to attend. Dress: Service dress with swords; mourning bands will not be worn.

---

The third annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, December 8th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. The price of the dinner will be 15s., exclusive of wines. Evening dress or dinner jacket, minature medals optional. The honorary secretaries are Major H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.

## Medical News.

The Board of Trade has appointed Sir Thomas Robinson, M.P., to be chairman of the Dyestuffs Advisory Licensing Committee set up in January, 1921. It has also appointed Mr. R. Waddington, M.P., and Professor G. T. Morgan, F.R.S., to be members of the Committee.

The annual meeting of Fellows and Members of the Royal College of Surgeons of England will be held at the College, Lincoln's Inn Fields, W.C., on Thursday, November 16th, at 3 p.m.

The annual series of post-graduate lectures and demonstrations at the Royal Salford and Ancoats Hospital, Manchester, commenced on October 19th. The meetings take place on Thursday in each week, at 4.30 p.m., alternately at the two hospitals, the next—on November 2nd—being at Ancoats Hospital, when Dr. Arnold Renshaw will lecture on diabetes.

Lady Constance Melville, who died in August last, has by her will bequeathed £4,000 to Dr. H. A. des Voeux, of Buckingham Gate, "in grateful thanks for his untiring help to a very troublesome patient."

The next session of the Dental Board of the United Kingdom will commence at 2 p.m. on Tuesday, November 14th, when the chairman, the Right Hon. Francis Dyke Acland, M.P., will take the chair and give an address. The Board will continue to sit from day to day until the termination of its business.

The old students' dinner of St. Thomas's Hospital will be held on Friday, November 10th, at the Princes' Restaurant, Piccadilly, at 7 for 7.30 p.m. The chair will be taken by Sir Charles Sherrington, G.B.E., M.D., President of the Royal Society.

A short course of seven lecture-demonstrations on gastro-intestinal affections in children will be given at the Children's Clinic, Western General Dispensary, Cosway Street, near Edgware Road station, on Mondays and Thursdays at 4.45 p.m., from November 2nd to 23rd inclusive. The first lecture, with experimental illustrations, will be given by Professor Sir William Bayliss, followed by six practical demonstrations by Dr. Bernard Myers. The fee for the course is one guinea, tickets for which and copies of the complete syllabus can be obtained from the secretary to the Fellowship of Medicine at 1, Wimpole Street, W.1.

The British Orthopaedic Association met in London on October 20th, when a number of papers were read. The members dined together that evening at the Langham Hotel. The President, Sir Robert Jones, who was in the chair, after declaring that there were to be no speeches, called on one member of the company after another to speak. One of his victims was M. Calvé and another Dr. Murk Jansen, who promised the association a very cordial welcome from his fellow countrymen when it visits Leyden next spring. On Saturday morning a visit was paid to the Royal College of Surgeons, when Sir Arthur Keith and Mr. Lawford Knaggs gave a demonstration chiefly concerned with deformities and lesions of the bones.

The late Dr. Henry Edward Langford of Kidderminster, who left estate valued at £16,451, has by his will directed that after some family legacies the residue of his estate on the death of his widow is to go to the Lifeboat Institution to the extent of £5,000, and the remainder, which it is expected will amount to about £7,000, to the Chancellor of the Exchequer towards the expenses of the late war.

It was announced recently that the Allied Chemical and Dye Corporation of New York has instituted in perpetuity an award of 25,000 dollars annually, to be presented to the chemist in the United States who has contributed most to the benefit of science and the world; the gift is not to be limited to any particular field of chemistry.

The British Medical Association Council dinner on Wednesday last (the first of its kind) was well attended and in every way successful. The President of the Council, Dr. R. A. Bolam, was in the chair, and the toast of the commonhealth was given by Sir William Macewen, President of the Association. It was acknowledged by Sir Arthur Robinson, Chief Secretary of the Ministry of Health, and Sir Anthony Bowlby, President of the Royal College of Surgeons of England. The health of the ex-President, who was the guest of the evening, was given by Dr. Wallace Henry, Chairman of Representative Meetings, and suitably acknowledged by Dr. David Drummond. The toast of the guests was given by the Chairman and responded to by Mr. E. Shortt, K.C., M.P., and Sir Henry Craik, M.P.; the health of the Chairman was proposed by Sir Jenner Verrall and briefly acknowledged. We propose to publish a more detailed report in our next issue.

Dr. Henry Hanson, who was formerly health officer at Panama, and at one time bacteriologist to the State of Florida, U.S.A., has just completed a successful campaign against yellow fever in Peru, and is now advising as to the reorganization of the public health services of that country with the view of eradicating bubonic plague.

For a quarter of a century the Anglican Sisterhood known as the Community of St. Peter has, among its charitable activities, kept up a home for aged and infirm women needing nursing and care, called St. Peter's Harbour. The home is self-supporting, but is found to be too small to accommodate the many applicants for admission. A public appeal is, therefore, being made—the first for sixty years—for funds to purchase a larger suitable house. Contributions should be sent to the Sister in Charge, St. Peter's Harbour, 10, Greville Place, N.W.6.

A sessional meeting of the Royal Sanitary Institute will be held at the Town Hall, Wallasey, on Friday and Saturday, November 3rd and 4th. Dr. F. T. H. Wood, M.O.H. Bootle, will open a discussion on "The expenditure of public money on health: why it is worth while." The chair will be taken by Professor H. R. Kenwood, C.M.G., at 7.45 p.m.

Mr. Marmaduke Sheild, consulting surgeon to St. George's Hospital and, early in his career, house-surgeon to Addenbrooke's Hospital, Cambridge, left the residue of his estate, after paying certain specific legacies and subject to the life interest of his sister, to the medical school of the University of Cambridge, to found a Marmaduke Sheild Scholarship in Human Anatomy, and the balance for the general purposes of the medical school. The value of the net personalty was £91,452. Mr. Sheild graduated M.B., B.Ch.Camb. in 1883.

# Letters, Notes, and Answers.

*As, owing to printing difficulties, the* JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal.

The postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

## QUERIES AND ANSWERS.

### Income Tax.

"X. Y." bought a death vacancy practice in December last.

*** He is chargeable with tax as from the date when he began to be entitled to the receipts, and the executors of the late proprietor are liable up to that date. The assessment for 1922-23 must be made on the average amount of the profits of the three years 1919, 1920, and 1921; but "X. Y." has the right of having that assessment adjusted at the end of the year on his application, provided he can show that the profits have fallen off since or by reason of his succession to the practice. It should be borne in mind, however, that for that purpose he will have to bring in his full and not merely his cash profits, the latter being an insufficient index of the true income from the practice in his early years.

"T. B." replaced his old Ford car by a new Overland, receiving as much for the former as it had cost him.

*** In evidence given by the official witnesses before the Royal Commission on the Income Tax it was stated that where an improvement was effected in connexion with a replacement the proper basis of allowance was the net cost that would have been incurred by the purchase of a similar machine. Consequently in this case "T. B." is entitled to the excess of the price of a Ford as at the date the Overland was purchased (£295) over the amount allowed to him (£155)—that is, £140 net.

### Is Desquamation after Scarlet Fever Infective?

A correspondent asks us to answer the question, Is the desquamation of scarlet fever infectious; or, putting it another way, Is the peeling child a danger to the unprotected?

*** We are not prepared to give a definite answer to the question, whichever way it be put, and so far as we can ascertain no definite opinion has been expressed by the Ministry of Health, or previously by the Local Government Board. Everybody is agreed that discharges from the nose, throat, or ears may be infective, as also any discharge from a cutaneous lesion, as, for instance, cracked ears; probably the general opinion of public health officers is that desquamation may be disregarded as unimportant from the aspect of infectivity. Some authorities, among whom we may mention Dr. Robert Milne, while holding this view, consider that special precautions should be taken by way of applications to the skin.

## LETTERS, NOTES, ETC.

### Prevention of Venereal Disease.

"Senex" writes: May I ask your readers to consider the position set up by "G.", whose letter you print on page 706? Does he consider that it is the duty of the employer to inquire how much it costs his servant to live? Is the employer to fix the standard of living for his servant? Does he suppose that shareholders receive dividends as shares in profits or as sinking fund? Does he not know that wages must be a first charge on the gross profits—a charge often so heavy that the balance is carried to the wrong side of the profit and loss account? If he thinks that reasonable self-love is inadequate to produce a decent society, will he turn to Bishop Butler's *Analogy*, the greatest work produced by a churchman in a sceptical age; or perhaps the work of Bentham (*Principles of Morals and Legislation*) some fifty years later may serve his turn. Does he himself propose to take from his practice only enough to pay expenses and secure an old-age pension and hand over the rest to some visionary society for assisting those who cannot or will not help themselves?

### Samples and Returns.

"W." writes: The emphasis laid by the Section of Obstetrics at the Glasgow meeting on the necessity of examining the urine reminds me of the old Scottish doctor's advice to his youthful successor:

*Old Doctor:* And mind this—aye ask your patients to send you a sample of their urine.

*Young Doctor:* Oh! How could I do that in a case of broken leg, for example?

*Old Doctor:* Doesn't matter! Broken leg or broken head, make them send their urine. *It's the only chance you'll have of getting your bottles back!*

### Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 36, 37, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *167*.


## SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

| | £ s. d. |
|---|---|
| Six lines and under ... ... ... ... | 0 9 0 |
| Each additional line ... ... ... ... | 0 1 6 |
| Whole single column (three columns to page) ... | 7 10 0 |
| Half single column ... ... ... ... | 3 15 0 |
| Half page ... ... ... ... ... | 10 0 0 |
| Whole page ... ... ... ... ... | 20 0 0 |

An average line contains six words

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers